COLONY OF MAURITIUS

Annual Report

OF THE

Department of Agriculture

for the year 1959

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PRINTED AND PUBLISHED BY
J. ELIEL FÉLIX, I.S.O., GOVERNMENT PRINTER,
PORT LOUIS, MAURITIUS
JANUARY 1961

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Department of Agriculture,
Reduit,
6th September, 1960.

Sir,

I have the honour to submit the Annual Report of the Department of Agriculture for the year 1959.

I have the honour to be,

Sir,

Your obedient servant,

G. A. North Coombes,
Acting Director of Agriculture.

The Honourable the Minister of Agriculture and Natural Resources,
Ministry of Agriculture and Natural Resources,
Port Louis.

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Annual Report of the Department of Agriculture for the year 1959

I. General Review

There has been no important change during 1959 in the policy of the Department of Agriculture. It continues to centre around the maximum utilisation of all agricultural land and the water resources to the best advantage of the people of Mauritius. Closely connected with this objective is the drive to develop the livestock industry as regards the production of milk, meat and poultry products.

2. In order to fulfil this task which has been assigned to it by the Ministry of Agriculture and Natural Resources, the Department of Agriculture is organised into 12 divisions employing 275 officers including a Director and two Deputy Directors who plan and carry out the experimental, development and extension work of the Department.

3. The Board of Agriculture, Fisheries and Natural Resources assists the Ministry and the Department in an advisory capacity.

4. Policy cannot be implemented without trained personnel; therefore the primary objective is to maintain an adequate technical staff within the Department. Nearly all the professional and technical officers of the Department are initially provided by the College of Agriculture which functions as a division of the Department. Specialist staff complete their training overseas. In order to meet the increased demand for trained personnel both in the Department and in the private sector, completely new schemes of studies have been prepared and are under examination in the Ministry of Agriculture and Natural Resources. The intention is to train two streams of students one predominantly in " General Agriculture " and the other in " Sugar Technology".

5. The staff of the Department has two main lines of work:—

(a) the development of experimental stations for the study of crops and and livestock in the various environmental conditions obtaining in Mauritius;

(b) extension work to give technical assistance to farmers in order to ensure the large scale dissemination and practical application of the information obtained from the experimental stations.

6. During the year under review the Department of Agriculture has maintained the four essential services which it continues to provide for the Sugar Industry, namely, the Sugarcane Millers and Planters Central Arbitration and Control Board which regulates the sale and purchase of canes, the

College of Agriculture which provides the industry with its cadre of trained staff, the Extension Service for small sugarcane planters whose aim is to raise the small planters yields to a figure more comparable with those of estates and, finally, the Plant Inspection service and Cane Quarantine station. The Department has worked in close cooperation with the Sugar Industry Research Institute and other organisations and has administered the Sugar Industry Rehabilitation Funds, including the Pointe aux Sables Cane Nurseries and the increasingly active Small Planters Mechanical Pool.

7. The development of agricultural industries other than the sugar industry has continued to be the major item of policy of the Department. No effort has been spared to promote schemes for the encouragement of local production of tea, tobacco, aloe fibre, livestock products and foodcrops. The implementation of the Tea Development project continued concurrently with the reorganisation and rationalisation of the original local industry. Most of the land cleared and planted to tea under the project consists of hitherto unutilised Crown lands. The land is leased to suitable tenants; approved type seed is supplied by Government without charge, and further assistance in the form of subsidies is given.

8. The construction of a new Government Tea Factory was completed and went into production under the management of the Nuwara Eliya Tea Estates Company (Mauritius) Ltd.

9. The Tobacco Industry is controlled by the Tobacco Board under the Chairmanship of the Director of Agriculture, while the Department of Agriculture provides research facilities to the industry. The constant endeavour of the Tobacco Board and the Department has been to improve the efficiency of the industry, to encourage the production of better grades of tobacco and thus to increase use of locally produced tobacco by the cigarette manufactures while not neglecting the possibilities of the export market. The prospects of a regular export market, however, remain discouraging.

10. The aloe fibre industry has continued to pose a difficult problem. Although there exists a demand by the Sugar Industry for sacks made of aloe fibre or a mixture of aloe fibre and jute, the cost of production of such sacks is higher than that of the imported jute sacks so that the necessity for a subsidy for the continued existence of the industry is inescapable. The Department has been actively engaged in doing everything possible to maintain this industry and has made available the services, on a part-time basis, of an officer for the management of the Government Sack Factory.

11. The Livestock Industry has shown encouraging results along the approved lines of development as delineated in subsequent sections of this report. A new poultry project with the object of producing pedigree day old chicks for farmers was started by the Department; 1,500 pedigree day old chicks of White Leghorn and Rhode Island Red breeds were imported from Australia as a nucleus breeding stock to initiate the project,

12. Foodcrop production was encouraged especially by demonstrations and technical advice given by the Department's Extension Service. A total of 9,777 arpents were grown to foodcrops during the year giving a total yield of over 50,000 tons.

13. In regard to land settlement a new project was started at Plaisance where about 150 acres of scrub land formerly part of Plaisance Aerodrome were cleared and parcelled out for the growing of vegetables by allottees. On the existing settlement schemes general maintenance works were performed by tenants under the control and guidance of departmental officers.

14. Development of the several experiment stations continued in 1959. More land was brought into cultivation at Curepipe Experiment Station and additional land acquired for Barkly Experiment Station and Abercrombie Nursery. Part of the development work of the stations had for object the provisions of facilities for trials and demonstrations of direct applicability to small holders. Apart from field experiments, the construction of simple hen yards and pit and trench silos are examples of this. Substantial progress in the installation and improvement of irrigation at the stations is also to be recorded, although much still remains to be done in 1960.

15. New orchards of litchi, mangoes and citrus were created. These will provide the material for future research on these crops.

16. At Richelieu Experiment Station 4 new tobacco barns were in an advanced state of construction at the end of the year. They are intended to provide additional facilities for the 1960 and subsequent curing trials.

17. Sales of plants and seeds continued at much the same level as in 1958. There was a small rise in revenue from sale of seeds, but a slightly greater drop from the sale of plants. The great bulk of the seeds produced comprised peas and beans but the demand still remains unsatisfied. It is mainly to meet this demand that new lands are being taken over at Barkly.

18. Further small trials in hydroponics showed interesting results, several crops yielding well under the system. Root stock production and propagation trials with citrus were undertaken as part of the intensified programme of work with this crop. New grasses were introduced under carefully controlled conditions and were planted out in preliminary trial plots at Reduit. A programme to sort out the substantial number of varieties of crops held in collections was put in hand towards the end of the year.

19. Further "Open Days" were held on the Experiment Stations. At Richelieu Experiment Station one was held for tobacco growers; at Barkly and Curepipe Experiment Stations field days were held for the general farming public. In this way the public have had an opportunity of getting better informed about the work of the Department. The interest shown by the public is indicated by the fact that over 4,000 people attended Curepipe on the two days the event lasted.

20. A number of investigations, more fully described later in this report were carried out on diseases affecting crops other than sugar cane which latter is now the responsibility of the Mauritius Sugar Industry Research Institute. Particular attention was paid during the year to the incidence of diseases of tobacco, tea, potato and tomato. Investigations were also carried out on the incidence of diseases of other crops namely:—maize, groundnut, sweet potato, manioc *(cassava)*, beans, peas, pigeon peas, onions, garlic, leeks, beets, carrots, chillies, cucurbits, egg plant, lettuce and other vegetables. The incidence of diseases of fruit crops and ornamentals was also studied.

21. Seed disinfection, soil fumigation and disease control in tobacco seed beds by means of patent chemicals have become established practice.

22. The Department continued to control the importation of plant and plant parts under regulations which have now been brought in line with the co-ordinated legislation under the Inter-African Phyto-sanitary Convention. A greenhouse unit was created for the quarantine of fodder grasses with the object of preventing the introduction of diseases affecting sugarcane, especially mosaic.

23. In regard to insect pests satisfactory results were obtained on the control of the pests of the pigeon pea. In some localities 90 to 95 per cent of the pods were free from pests and in the areas where the attacks were most severe only 15 per cent of the pods were affected. Studies on the control of many other insect pests by biological methods and by means of insecticides were undertaken during the year. These covered the pests incident on crops other than sugarcane namely fruit crops, tomato, potatoes, citrus, tea, tobacco, coconut and other crops. The control of the stable flies *Stomoxys nigra* and *S. calcitrans* and of *Musca domestica vicina* was also investigated.

24. The Chemistry division, apart from miscellaneous analytical work for the public, undertook all the analytical work of the other divisions of the Department. This included the analysis of fertilizers, boiler feed water, irrigation water, foodstuffs, fodder, milk, sugar products, lime, soil and silage.

25. The Engineering Division was fully staffed by the end of 1959. The division was entrusted with the servicing and preventive maintenance of all vehicles and machinery of the Department, the local fabrication of equipment and the planning and control of departmental works. The Livestock Feed Factory was operated as part of the division. The production of the factory was almost double that of the previous year. This shows that the importance of feeding balanced rations is being understood by stock owners and poultry keepers.

26. Experimental studies on fish farming were continued. Nine small fish ponds were constructed at Curepipe Experiment Station for the study on the scale of the small holder of the integration of fish farming and cow keeping in peasant agriculture. Other trials in progress include stocking rates, fertilizer trials, and *monosex* culture. Yields of around 1,000 kilos per acre were obtained with *Tilapia macrochir* and *T. nilotica* in monosex clture.

27. In Rodrigues, work on the Agricultural Development Plan was continued on the lines set out in the 1957 and 1958 reports. By the close of the year 800 unit farms had been prepared and leased. About 200 acres in the cattle walk are also to be developed in the same manner. This will result in a transfer of population from the overpopulated eroded hill lands to the underpopulated fertile and rich agricultural land of the cattle walk.

28. The 10 departmental farms have been maintained and have been very useful to demonstrate the new farming methods which are now being readily adopted by Rodriguan farmers. Thirteen Livestock Breeding Centres were also maintained and 17 cows, 35 piglets and 21 goats of pure or improved breeds were sold to farmers during the year.

29. The policy of close collaboration with Madagascar and La Réunion was maintained. The 1959 General Meeting of the *Comité de Collaboration Agricole Maurice — Réunion — Madagascar* was held in Madagascar under the chairmanship of *Monsieur* M. Henry, *chef des Services de l'Agriculture de Madagascar*. This cooperation has been very useful in many ways, particularly in determining mutually agreed action to prevent the introduction of Fiji disease in Mauritius and La Réunion.

II. Boards and Committees

30. Departmental officers served on the following boards and committees:

Agricultural College Advisory Board*
Agricultural College Reorganisation Committee*
Board of Agriculture, Fisheries and Natural Resources*
Board of Examiners of the College of Agriculture*
Board of Examiners for the Registration of Agricultural Chemists*
Cane Release Committee
Comité de Collaboration Agricole Maurice—Réunion—Madagascar*
Committee to make recommendations in connection with the production of foodcrops in cane lands*
Customs Tariff Advisory Board
Cyclone and Drought Insurance Board
Fisheries Committee
Irrigation Committee
Land Acquisition Board
Land Settlement Committee†
Malaria Advisory Board
Mauritius Sugar Industry Research Institute Executive Board
Mauritius Sugar Industry Research Advisory Committee
Soil Erosion Committee
Sugar Industry Rehabilitation Fund Committee†
Sugar Industry Reserve Fund Committee
Sugar Millers' Rehabilitation Fund Committee†
Sugar Planters' Rehabilitation Fund Committee†
Tea Committee*
Tobacco Board*

* The Director of Agriculture as Chairman.
† A Departmental officer as Chairman.

III. Board of Agriculture, Fisheries and Natural Resources

31. The Board which functions under Ordinance No. 29 of 1957 met on three occasions during the year.

32. The following committees were set up by the Board for specific purposes:—

(a) The Fisheries Committee

(b) The Land Settlement Committee

(c) The Irrigation Committee

(d) The Cane Release Committee

(e) The Soil Erosion Committee

(f) A committee to make recommendations in connection with the production of foodcrops in cane lands.

33. The principal items considered by the Board were the following:—

(a) The percentages of Land Settlement Holdings to be grown under sugarcane and foodcrops respectively;

(b) The control of soil erosion;

(c) The planting of river reserves with suitable trees of economic value;

(d) The production of foodcrops in cane lands;

(e) The release of three new sugarcane varieties.

IV. Mauritius Chamber of Agriculture

34. The Chamber of Agriculture continued to play an important part in the agricultural affairs of Mauritius. Its representatives took part in the annual series of meetings between the Commonwealth Sugar Exporters and officials of the Ministry of Agriculture, Fisheries and Food in U.K. in connection with the Commonwealth Sugar Agreement. Developments in regard to the International Sugar Agreement and the sugar world market were also kept under close review by the Chamber. The Chamber appointed the Committee which administers the Sugar Industry Reserve Fund. It also appointed delegates to the following Boards and Committees: The Customs Tariff Advisory Board, The Agricultural College Advisory Board, Le Conseil d'Administration de la Revue Agricole, The Hurricane Loan Board, The Sugar Industry Rehabilitation Fund Committee, The Sugar Millers Rehabilitation Fund Committee, The Sugar Planters Rehabilitation Fund Committee, The Electricity Advisory Committee, The Sugar Industry Research Institute Board, The Cyclone and Drought Insurance Fund Board, The Sugar Industry Labour Welfare Fund Committee, The Government Sack Factory Board, The Malaria Advisory Board, The Board of Agriculture Fisheries and Natural Resources, The Cyclone Emergency Committee, The Morris Legacy Fund and the Social Welfare Advisory Committee. The work of the Chamber is fully reported in the President's Annual Report.

V. Comité de Collaboration Agricole Maurice — La Réunion — Madagascar

35. During the year the Committee operated under the Chairmanship of Mr. M. Henry, *Chef des Services Agricoles de Madagascar,* with the Director of Agriculture in Réunion and the Director of Agriculture in Mauritius as Vice-Chairmen.

36. The Committee held its ninth Annual General meeting on the 28th of October, in Madagascar with Mr. Rasidy, *Secrétaire d'Etat au Paysanat et au Génie Rural,* in the chair.

37. The work of the Committee during the year consisted mainly in the exchange of data and information between the specialists of the three territories. One of the main items of interest was the study of diseases and pests of the sugarcane and the measures taken to combat Fiji disease in Madagascar and to prevent its entry into Mauritius and La Réunion. Among the visits sponsored by the Committee in the three territories the following were of special interest:—

(a) Visit of Messrs. R. Antoine and R. Bechet of the Mauritius Sugar Industry Research Institute to Madagascar in February, in connection with Fiji disease resistance trials;

(b) Visit of Mr. S. Staub of the Department of Agriculture in March to study the Textile Industry in Madagascar;

(c) Visit of Mr. R. Bechet of the Mauritius Sugar Industry Research Institute to Madagascar in July in connection with Fiji disease resistance trials.

38. The approved programme of work for 1960 included a meeting of a sub-committee to study phytopathological problem in the three territories. Also included in the programme of work are visits by specialists with a view to foster the production of seed potatoes in Mauritius, quality tobaccos and tea in La Réunion and tea in Madagascar.

VI. College of Agriculture

39. The College of Agriculture continued to offer a three-year course leading to the Diploma in Agriculture and an eighteen months course for the Certificate in Tropical Agriculture and Cane Cultivation.

40. The Lectureship in Sugar Technology and Engineering remained unfilled, the teaching of these subjects being entrusted to officers of the Sugar Technology Division of the Sugar Industry Research Institute. The teaching of other applied subjects was undertaken by part-time lecturers, mainly officers of the Department of Agriculture and of the Sugar Industry Research Institute.

Entrance Examinations and Scholarships

41. 46 candidates applied for admission to the Diploma course and sat the entrance examinations which were held in April. Of these, 23 satisfied the examiners and were admitted as full time students to the first year of the diploma course. There were also 29 candidates for admission to the Cane Cultivation course all of whom were admitted. Out of 28 who applied for admission to the Tropical Agriculture Course 7 were accepted.

2 Government Scholarships and 2 College Entrance Scholarships were awarded.

Student Body

42. The number and distribution of students at the College is tabulated below:—

Course	No. of Students		
	1959	1958	1957
Diploma	52	47	59
Tropical Agriculture and Cane Cultivation ...	36	16	22
Sugar Analysis	6	5	7
Part Time	8	3	2
Total	102	71	90

43. Attendance at the Sugar Analysis Course which was started in 1954, continued to be poor and no final decision was taken as to whether the course should be abolished or not.

Examination Results and Laureateships

44. The results of the annual examinations held in April are tabulated below:—

	1959		1958	
	Sat	Passed	Sat	Passed
1st Year—Diploma Course	11	9	23	19
2nd Year—Diploma Course	19	19	18	17
3rd Year—Diploma Course	17	17	17	17
Certificate in Tropical Agriculture and Cane Cultivation	7	5	21	16
Certificate in Sugar Analysis	6	6	6	5

45. Two failures in the First Year Examination for the Diploma Course left the College. Among the Third Year candidates five qualified for an Honours Diploma. Three Laureateships for studies overseas were awarded to the first three candidates.

Examination in Sugar Manufacture of the City and Guilds of London Institute

46. This examination which was held this year for the last time was held in May. The results were:—

No. of candidates 17
No. of College candidates 15
Total No. of passes 14
Total No. of College passes 13
First Class Honours ... ... 5 (all College candidates)
Second Class ... ... 9 (8 College candidates and 1 outsider)

47. A College Diplomate was awarded the Silver Medal of the Institute on the results of this examination.

Visits of Students to Reunion and Madagascar

48. Under the auspices of the *Comité de Collaboration Agricole*, a party of six 3rd-Year Diploma Students, accompanied by the Principal and the Assistant Lecturer in Sugar Technology, visited Réunion during the November vacations. No return visit was possible owing to a sudden recurrence of poliomyelitis in the Colony.

Prize-Giving

49. The College was honoured by the presence of His Excellency the Officer Administering the Government and the Honourable the Minister for Agriculture and Natural Resources at the annual distribution of awards held on the 16th July. The Officer Administering the Government presented the prizes and diplomas.

VII. Central Board

50. The Central Board operates under the Sale of Cane (Control) Ordinance. The executive machinery of the Board is run as a division of the Department of Agriculture.

Meetings of the Board

51. The Board held 34 meetings during the year, as follows:—

2 meetings relative to the assessment of sugar to planters;
10 meetings relative to changes of delimitation of factory areas;
9 meetings relative to protests against assessments of sugar;
3 meetings relative to closing down of weighbridges;
10 meetings relative to general business.

Cane Testing

52. The number of tests carried out was 15,893 covering 213 planters or groups of planters and 119 estate sections supplying canes to 23 factories. The estate sections are tested in the same manner as planters' canes for the purpose of arriving at a weighted average of sucrose per cent cane and establishing a correlation with the factory figures. The corresponding figures for the 1958 crop were 14,888 tests covering 335 planters, groups of planters and estate sections supplying canes to 24 factories.

Assessment of Sugar

53. Following the publication of figures of provisional assessment of sugar to planters for the 1958 crop, 17 Cooperative Credit Societies, 1 middleman, 1 miller, 70 planters and two planters' associations lodged protests against the awards made by the Board.

54. The protest made by the miller was considered by the Board, which accepted the amendment applied for. Seven planters withdrew their protests or came to an agreement before being heard by the Board. The other cases were heard by the Board and were rejected.

Cost of Production

55. Questionnaires required to work out production costs were sent to 150 planters, selected according to tonnage of canes produced, and to 24 millers. With a few exceptions the questionnaires were returned duly filled in.

Transport Costs

56. Before the crop started, a schedule was issued showing the maximum rate claimable by millers for the transport of planters' canes in each factory area from the various weighbridges to the factory. The schedule was based on the following formulae:—

$$C = Rs\ (2.30 + .20 \times m) \text{ for road transport}$$

$$\text{and } C = Rs\ (2.35 + .65 \times m) \text{ for rail transport,}$$

where " C " is the cost of transport per ton of cane and " m " the number of miles over which transport is effected.

Delimitation of Factory Areas

57. 19 applications for changes of delimitation of factory areas were received. Two of the applications were withdrawn; three cases were postponed at the request of the applicants. The Board granted one application. The other applications were either not entertained or rejected.

Permits to Middlemen

58. 57 permits were issued to middlemen for the crop.

Complaints against Middlemen

59. 37 complaints against middlemen were received. With a few exceptions, parties reached an amicable settlement.

Cane Contracts

60. 11,320 cane contracts were registered. The total number of registered contracts in force in 1959, was 12,215 covering 19,796 planters.

Breach of Sale of Canes (Control) Ordinance

61. 16 cases of breach of Sale of Canes (Control) Ordinance were reported to the Police and prosecutions were started against the offenders.

62. This year again the number of planters who failed to enter into contracts with millers before the 30th of June was fairly large, totalling 90.

Cane Varieties

63. No change occurred to the list of varieties authorised for planting by proclamation under the Sugar Cane Plantations (Control) Ordinance, Proclamation No. 5 of 1956 remaining in force. Under this proclamation the varieties approved for planting are: M 134/32 (together with its white and striped sports), M 112/34, Ebene 1/37, BH 12/12, B 3337, B 37161, B 37172, M 147/44, B 34104 and M 31/45,

Control of Cane Weighbridges

64. 133 weighbridges were in operation as compared with 139 in 1958, eleven having been closed down with Board's approval and 5 new weighbridges having been erected. Of this total 123 were found to be accurate on first examination, 2 had to be re-examined and 8 had to be submitted to a 3rd examination. None of the weighbridges required to be condemned.

Surprise Checks carried out at Weighbridges during the Crop

65. During the crop, 186 surprise checks were carried out; 163 vehicles were re-weighed (58 carts and 105 lorries). In 7 cases the weight was found to be inaccurate and the weighers were prosecuted. In addition, 13 warnings were issued to weighers for inaccurate weghing.

VIII. The Mauritius Sugar Industry Research Institute

66. The work of the Mauritius Sugar Industry Research Institute is fully reported in the Annual Report of the Institute.

67. The production of new sugarcane varieties remains the most important endeavour of the Institute. Investigations were continued on the techniques of crossing, bunch planting, pre-release trials and final variety trials. Several types of photoperiodic experiments on flower formation were also carried out.

68. During the year 72 varieties were undergoing testing in pre-release trials on estates. The Cane Release Committee recommended that two varieties, M 202/46 and M 93/48, be released for commercial cultivation in 1960 and that variety M 253/48 be released for planting in sub-humid irrigated areas only subject to the issue of permits by the Central Board. Research was also carried out on fertiliser problems. As regards work on the soil survey of Mauritius a phase map of rockiness (scale 1:25,000) was drawn up, the classification being materially the same as that adopted by the United States Department of Agriculture.

69. In the field of cane diseases research was centred mainly on ratoon stunting disease and Fiji disease. Although this latter disease, fortunately, does not occur in Mauritius, it is obviously necessary to be in readiness to combat the disease should it find its way into the Island from Madagascar. With the collaboration of the French authorities Fiji diease resistance trials on the main cane varieties cultivated in Mauritius were laid out in the highly contaminated Brickaville area in Madagascar.

70. The report of the Institute also contains valuable contributions on matters relating to cane pests, weed control, cultivation and irrigation problems. A section of the report is devoted to various studies in sugar manufacture.

71. The Cane Quarantine Greenhouse for which the Department of Agriculture is responsible was jointly supervised by the Department and the Institute. At the end of the year eleven imported varieties were in quarantine. Close liaison was maintained with the Institute as in previous years especially in regard to the Department's extension work, a primary objective of which is to pass on rapidly to small sugarcane planters all over Mauritius the experimental results obtained at the Institute.

IX. The Sugar Industry

Crop Results

72. The total area under cane was 195,307 arpents of which 183,117 arpents were reaped compared with 189,217 arpents and *176,678 arpents respectively for 1958. Climatic conditions were favourable and a record production of 579,869 metric tons of sugar was reached. The yield of sugar per arpent was 3.17 metric tons. This compares favourably with the yield of *2.98 metric tons obtained in the previous year but is less than the yields of 3.41 and 3.31 metric tons obtained in 1956 and 1957 respectively. The average crushing rate was 87.7 metric tons per hour compared with 82.5 in 1957 and the average daily crushing rate was 1,797 tons compared with 1,600 tons in 1958.

Cyclone and Drought Insurance

73. The original insurance scheme was set out in Ordinance No. 53 of 1946. This Ordinance had been amended to overcome certain technical and administrative difficulties; however in the light of experience gained in assessing compensation in respect of the 1957 drought and the 1958 cyclones, it has been decided to revert to the original scheme which was based on yield of sugar per acre. The new legislation which was enacted early in 1960 also provides *inter alia* for the registration of cane plantations and the manner in which insurable sugar shall be determined.

74. After taking into consideration claims of Rs 27,700,000 payable in respect of the years 1957 and 1958 it is estimated that the net assets of the Fund were Rs 120,000,000 at the end of 1959.

Cane Varieties

75. The variety M 134/32 which was at one time predominant continued to recede being gradually replaced by M 147/44 and B 37172 in dry areas and Ebene 1/37 and B 3337 in humid areas.

Quotas and Prices

76. The negotiated price quota for the calendar year 1959 under the Commonwealth Sugar Agreement was 343,375 long tons and the price £45-2-0d per ton. 290,760 tons were exported to the United Kingdom against this quota during the year and a further quantity of 75,765 long tons under the 1960 quota. The total exports amounted to 500,446 long tons and local consumption to 26,000 long tons.

* The figures quoted in last year's report (174,000 and 3.02) are not correct.

Sugar Exports

77. The exports of sugar were as follows:—

	Long tons
To United Kingdom... ...	387,418
Canada	86,575
Hong Kong	8,700
Lebanon	7,307
Malaya	1,100
Nyasaland	6,450
Singapore	1,550
Seychelles (excluded exports) ...	1,346
Total ...	500,446

Molasses and Alcohol

78. The production of molasses amounted to 118,000 tons of which 60,000 tons were exported; about 18,000 tons were used in the manufacture of rum and various other fermentation products and the balance as fertilizer to the cane fields. The total production of alcohol reduced to 100°G.L. was 1,926,387 litres, the greater part of that production being used locally as rum, denatured spirits and power alcohol and in the manufacture of vinegar; only about 30,000 litres were exported.

The Sugar Industry Rehabilitation Funds

79. The Sugar Industry Reserve Funds Ordinance 1948 which had been frequently amended was redrafted and consolidated as Ordinance No. 20 of 1959.

80. Some of the more important new features of the Ordinance are that the committees may receive directives from the Governor in Council on matters of policy, that metayers will be beneficiaries of either the millers or planters fund as applicable and that the Labour Welfare Fund Committee shall consist of not more than twelve members appointed annually by the Governor on the advice of the Minister of Labour.

81. The Sugar Planters Rehabilitation Fund continued to operate the Small Planters Mechanical Pool and a large cane nursery at Pointe aux Sables for supplying disease free planting material and cuttings of newly released varieties to small planters.

X. Tea Industry

Tea Committee

82. The Tea Committee—an advisory body appointed under the provisions of the Tea Industry Control Ordinance, 1949—met on nine occasions during the year.

Legislation

83. A Government Notice (No. 59 of 1959) comprising regulations made by the Governor in Council under the Tea Industry Control Ordinance, 1949, and cited as the Tea Industry Control (Sale of Leaves) Regulations, 1959, was promulgated during the year. The effect of these regulations was to revoke the Tea Industry Control (Sale of Leaves) Regulations, 1956, and to replace these by a newly devised form of green leaf price control.

84. The Tea Industry Control Ordinance, 1959, (Ordinance No. 29 of 1959) was passed in Legislative Council in November, 1959, and will be promulgated early in 1960. This new Ordinance repeals and replaces the Tea Industry Control Ordinance, 1949, as subsequently amended, and vests full control over the Colony's tea industry in an independent and executive Tea Control Board under the Chairmanship of the Director of Agriculture.

Managing Agency

85. The Nuwara Eliya Tea Estates Company (Mauritius) Limited operated throughout the year as Government's Managing Agents in respect of Government's Midlands Tea Estate and of the new Government Tea Factory in the Midlands Valley. Construction of this new factory and ancillary buildings was completed in April 1959, whereafter it went into limited production under the designation of Chartreuse Tea Factory. Teas produced to date have proved to be of satisfactory standards and all are being consigned to the London auctions.

86. Government's Midlands Tea Estate made good growth during the year and yields from the more mature tea areas were satisfactory, although in some cases prejudiced by the necessity to revise the pruning cycle for the enlarged estate. Thirteen acres of new land were cleared and planted, and work commenced on development of a further fifty acres at the end of the year. Construction of an additional twenty labourers' quarters was put in hand, and the estate was linked to Chartreuse Factory by a new temporary all-weather road pending continuation of the Pitel road project.

Climatic Conditions

87. During the main part of the year average and favourable weather conditions were generally encountered. The period mid-October to mid-December, however, proved disappointing with exceptionally low temperatures and unusual rainfall and this prejudiced recovery from pruning and greatly reduced second-flush crops.

Factories

88. The new Chartreuse Factory went into operation from May. No other major changes in factory capacity or layout took place, although Pont Colville Factory installed a new four-foot drier. Improvements in organisational control and manufacturing techniques varied considerably from factory to factory, but once again appreciable advances were achieved in most cases. Factories using C.T.C. machines suffered heavily from lack of adequate facilities for resharpening roller segments; installation of a specially designed sharpening machine for the benefit of all C.T.C. factories was in hand by the close of the year.

Mauritian Teas

89. With increasing production and saturated local consumption, producers once more found it necessary to depend to an increasing extent upon export sales. Overseas price levels were generally below those for 1958 throughout the greater part of the year, although there was a distinct upward trend in the final quarter after most of the Mauritian crop had already been sold. Despite these uncontrollable factors, Mauritian offerings on the London

Auctions amounted to more than twice the weight sent forward in 1958, whilst the average price achieved on this market reflected an increase of over 4d. per pound. Mauritian teas appeared with regularity on the Nairobi Auctions and over 3,000 packages were sold at around average prices prevailing — most of the Mauritian offerings at Nairobi were of lower grade teas. Some private export sales were also made by certain producers.

90. 5,289 packages* of Mauritian tea were sold on the London Auctions at an average price of 3s.-11-43d. per pound—as compared with 2,265 packages* at an average of 3s.-7-32d. per pound in 1958. Comparative figures for Nairobi sales are not published and are not therefore available.

Development Project

91. The Colony's Tea Development Project is being undertaken concurrently with re-organisation and rationalisation of the original small local industry, and is in the form of a Government-sponsored pilot scheme designed to put 3,000 acres of new land under tea (together with proportionate manufacturing capacity) by mid 1962. Most of the land employed for the purposes of this initial expansion consists of hitherto unutilised Crown land, and this has been leased in appropriately sized blocks to selected members of the public for the sole purpose of development as tea plantations. These new tenant planters are largely inexperienced, and they are provided with as much help and guidance as possible. Approved types seed is supplied by Government without charge, and a number of subsidies are paid.

92. Progress on land development was less rapid than in former years — some planters were obliged to consolidate work carried out in the previous season, whilst an unfortunate strike of tractor drivers and technicians broke out at the end of the year and seriously hampered land clearing operations— most of which are normally undertaken at this season when the weather conditions in upland areas are most suitable for efficient tractor operation. By the end of the year, it was estimated that approximately 1,500 acres of new land had been cleared, and mostly planted, since the inception of the Project.

93. Areas cleared and planted in season 1958–59 showed a marked improvement over those established earlier. This was largely attributable to increased experience of new planters, to consequently higher standards of work, and to more favourable climatic factors. Earlier plantings still require a considerable amount of infilling for which there are not as yet sufficient replacement plants, as well as revision of drainage and soil conservation systems, whereas later plantings are in the main showing considerable promise.

94. The planting by Government of some 400 acres for subsequent distribution in small plots on lease to small planters when the resultant tea is well established and over three years of age, was accelerated as much as possible following upon the handing over in 1958 of some 250 acres already cleared and planted for this purpose but then integrated with the Midlands Estate under Government's Managing Agents. Rather more than 100 acres were cleared and some 80 acres planted by the end of the year.

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* A Package is normally taken to average 108 lbs.

Tea Seed

95. Some 4,345 pounds of first grade tea seed of approved types were imported by air from African sources. Most of this seed travelled well and arrived in satisfactory condition.

96. The seed crop from the nine acre seed garden at Parc-aux-Cerfs showed a substantial reduction on previous years only amounting to 7,950 pounds. In addition to this, some 6,900 pounds of good tea seed were purchased from the Midlands Estate seed garden now under the control of the Numara Eliya Tea Estates Company (Mauritius) Limited.

97. Six acres of the Ajudah seed garden at Nouvelle Découverte made reasonable growth. The other half of this area was replanted under temporary green crop protection. Additional wind-breaks were established.

In the Salazie seed garden at Nouvelle Découverte the first planted section, amounting to about eight acres, made excellent progress; planting of the remainder was completed.

98. As in previous years, seed was kept in cold storage and issued as required, and this system continued to operate satisfactorily.

Tea Experimental Station — Wooton

99. The Wooton Station — with a plucking area of almost 70 acres — yielded 262,864 pounds of green leaf during the crop year 1958–59 (July to June). This represents an increase over the previous crop year of some 43,000 pounds and an overall estate yield average of about 3,755 pounds of green leaf per acre (807 lbs of made tea). In view of the fact that roughly one-third of the station was still under five years old, and that a higher proportion than usual was cleanpruned in 1957–58, this yield is considered to be satisfactory at the present juncture. Four of the older fields yielded around 1,100 pounds of made tea per acre at 21.5 per cent out turn — two of them in fact exceeding 1,200 lb.

100. It was not possible, owing to shortage of staff, to pursue vegetative propagation of clones on as large a scale as had been hoped, and once again artificial shade constituted something of a problem. Nevertheless, some 66 clones were successfully raised, whilst further field selections were made and crop tests of these were put in hand. By the end of the year the necessary equipment to enable single bush manufacture to be carried out had been received and installed. A number of trials on new propagation techniques involving plastic bags, cold frames and mist propagators were investigated at the Barkly Experiment Station under supervision of the Senior Agricultural Officer in charge of the Agricultural Division and the Horticulturist. The results have been so promising that propagation on a larger scale will be undertaken.

PRODUCTION

101. Mauritius produced 1,997,103 pounds of black tea in 1959, the quantity manufactured by each factory being as follows:—

	Production of the six factories during the last five years				
	1955 *lbs*	*1956* *lbs*	*1957* *lbs*	*1958* *lbs*	*1959* *lbs*
Bois Chéri	634,780	694,399	906,248	651,560	654,545
La Flora	246,832	319,022	424,381	580,313	502,258
Corson	317,014	345,444	327,740	309,086	332,523
Pont Colville	104,657	139,465.7	150,273	174,079	128,374
Nouvelle France	36,743	39,264.5	85,110	209,620	268,582
Chartreuse	—	—	—	—	110,821
	1,340,026	1,537,595.2	1,893,752	1,924,658	1,997,103
R. Aubeeluck (Green Tea) ...	1,822	697	66	—	—

EXPORTS

102. Tea was exported to the following countries:—

	1957 *lbs*	*1958* *lbs*	*1959* *lbs*
United Kingdom	914,690	712,318	815,596
South Africa	48,217	28,572	112,832
New Zealand and Australia	8	25,052	—
Other Commonwealth Countries ...	450	499	—
Madagascar and Réunion	2,543	1,258	3,471
Western Europe	3,306	6,292	42,171
U. S. America	—	—	49,401
TOTAL EXPORTS ...	969,214	773,991	1,023,471

IMPORTS

103. Imports of tea were as follows:—

	1957 *lb*	*1958* *lb*	*1959* *lb*
China	3,115	4,580	6,163
Hong Kong	4,475	4,358	4,229
Ceylon	11,665	3,122	8,050
India	—	—	3,740
Other Countries ...	156	99	22
TOTAL IMPORTS ...	19,411	12,159	22,204

XI. Fibre Industry

PRICES

104. During the year the prices of fibre remained unchanged whilst there was a further reduction in the price of sacks. One of the aspects of the agreement between the Fibre Producers, the Government Sack Factory — which purchases the total quantity of fibre produced in the Colony — and the Sugar Millers — who buy the sacks produced therefrom — is that whilst the prices

of fibre are stable the price of sacks is linked with that of the imported jute sacks. Thus, notwithstanding the various price benefits conferred by the agreement, the selling price of reinforced aloe fibre sacks to the sugar millers was Rs 1.27 per unit compared with Rs 1.45 for 1958 and Rs 1.51 for 1957.

	Price of Fibre per Metric Ton			
	1954	*1955*	*1956*	*1957-59*
	Rs	Rs	Rs	Rs
First Grade brushed ...	1,272	1,145	1,031	1,030

Fibre Production

105. Comparative statistics in regard to the fibre industry are tabulated below:—

	1957	*1958*	*1959*
No. of factories operating	22	21	20
Fibre produced (m. tons)	1,744*	1,576	1,465
Value of local sales	Rs 1,749,000	1,553,000	1,403,000
Value of exports	—	—	—
Area under aloe (arpents) wild ...	6,549	6,101	6,354
Regular plantations	1,165	839	888

106. There were no exports of fibre during the year, the Government Sack Factory having been the sole purchaser of all fibre produced since 1957.

107. Another fibre factory has closed down confirming the trend towards centralisation in an effort to bring down the cost of production of aloe fibre.

Sack Factory

108. Production figures at the Government Sack Factory were as follows:

	1957	*1958*	*1959*
Fibre processed (m.t.)	1,797	1,570	1,267
Sack produced (80 kgs. capacity) ...	1,657,000	1,423,000	1,201,000
Filter cloth (yards)	15,000	25,000†	28,000
Other fabrics (yards)	5,700	2,000	1,300
Yarn (for ropes)	10,600	13,700	15,300

109. Owing to the further drop in the price of sacks the net loss for the year amounted to Rs 389,000 compared with Rs 29,000† for the previous year.

110. During the year the factory went through a difficult period. On the 19th September the workers went on a strike in protest against the retrenchment of 35 workers for whom no work was available owing to a short supply of fibre. The strike lasted 41 days. A Board of Enquiry was appointed to investigate the circumstances and causes of the strike. On the 1st October, a fire broke out in the processed fibre stores forming part of the Factory buildings and damaged all the manufactured stocks. Although these stocks were covered by insurance, the disruption meant a heavy handicap to the indusary taken as a whole and including all those engaged in it.

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* The figure quoted in last year's report (1,765) is not correct.

† The figures quoted in last year's report (14,000 and Rs 69,000) are not correct.

XII. Tobacco Industry

111. Production was limited to the estimated requirements of the British American Tobacco Co. (Mauritius) Ltd. The provision of a small stock of 20,000 kgs of Virginian flue-cured tobacco was made for the newly established manufacturing company, the Amalgamated Tobacco Corporation (Mauritius) Ltd.

Crop Conditions

112. The first crop of Virginian flue-cured tobacco started well at the beginning of the year; the quality of the tobacco produced was somewhat affected by drought conditions which prevailed in some localities during the months of May, June and early July. Some tobacco remained green in the field and was difficult to cure.

113. The second crop of Virginian flue-cured planted in July — August was of a good standard though frog-eye was prevalent in some areas. Alternaria Brown Spot was also noticed in rare cases.

114. The flue-cured Amarello crop planted in March and April suffered from the initially dry weather conditions but recovered later and the quality of the tobacco produced was fairly good.

115. The air-cured Amarello also suffered from drought in the early months of the growing season. Conditions improved at the end of the year and the yield of plantations was a little above the quantity allocated for production.

116. Insect pests were kept under satisfactory control.

Issue of Permits

117. The following table compares the issue of permits in 1959 with that of the previous year:—

	1958		*1959*	
	Arpents	*Kilos*	*Arpents*	*Kilos*
Virginian flue-cured...	617	188,000	738.26	300,000
Amarello flue-cured	83	75,000	138.83	130,000
Amarello air-cured	274	237,000	164.34	140.000
Total	974	500,000	1,041.43	570,000

Customs and Excise duties were revised in order to encourage the consumption of domestic tobacco. In accordance with this measure planting permits of Virginian flue-cured tobacco were issued.

A lower allocation of air-cured Amarello was effected, the British American Tobacco Company (Mauritius) Ltd., having replenished their stock in this type of leaf.

Production

118. The actual production is shown below with the 1958 figures for comparison.

	1958		1959	
	Arpents	*Kilos*	*Arpents*	*Kilos*
Virginian flue-cured...	617	199,541	724	296,174
Amarello flue-cured	81	77,818	143	125,075
Amarello air-cured	267	220,811	162	145,691
TOTAL	965	498,170	1,029	566,940

Yields and Returns

119. The average yield of leaf and the financial returns to growers of flue-cured Virginian, flue-cured Amarello and air-cured Amarello, compared with those for the previous year, are shown hereunder.

	Average yields per arpent	
	1958	*1959*
	Kgs.	*Kgs.*
Virginian flue-cured	323	409
Amarello flue-cured	961	875
Amarello air-cured	825	899

	Average returns per arpent	
	Rs	*Rs*
Virginian flue-cured	2,003	2,492
Amarello flue-cured	5,243	4,542
Amarello air-cured	2,084	2,085

	Average values per kilo	
	Rs	*Rs*
Virginian flue-cured	6.19	6.09
Amarello flue-cured	5.46	5.19
Amarello air-cured	2.53	2.32

Quality

120. The quality of the tobacco produced was slightly lower than in 1958, the drop in quality being somewhat more pronounced in the case of Amarello flue-cured and air-cured.

	Percentage of bright and medium grades				
	1955	*1956*	*1957*	*1958*	*1959*
Flue-cured	70	69	73	78	75
Air-cured	15	16	21	25	10

LOCAL MANUFACTURE

121. The manufacturers' purchases and usings of domestic and imported leaf were as follows:—

1959 Purchases	*Kilos Domestic*	*Kilos Imported*	*Kilos Total*	*% Total Imported*	*Value per Kilo*	
					Imported C.I.F.	*Domestic Rs*
B.A.T. Co. (Mts.) Ltd. ...	581,938	—	581,938	—	—	5.79
A. T. Cpn. (Mts.) Ltd. ...	—	123,193	123,193	100	10.28	—
TOTAL	581,938	123,193	705,131	17.5	—	—

1959 Usings	*Kilos Domestic*	*Kilos Imported*	*Kilos Total*	*% Total Imported*	*Value per kilo*	
					Imported C.I.F.	*Domestic*
B.A.T. Co. (Mts.) Ltd. ...	462,899.5	93,060.5	555,960	16.7	—	—
A.T. Cpn. (Mts.) Ltd. ...	—	13,225	13,225	100.0	—	—
TOTAL	462,899.5	106,285.5	569,185	18.6	—	—
1958						
Purchases	409,591	125,323	534,914	23.4	9.94	5.63
Usings	449,239	84,205	533,444	15.8	—	—

In September, the Amalgamated Tobacco Corporation (Mauritius) Ltd. started manufacturing "Mills" cigarettes, a brand previously imported. A competing brand "*Matinée*", produced by the British American Tobacco Company (Mauritius) Ltd., came on the market in October.

122. The percentage of imported leaf used in the manufacture of local cigarettes increased in 1959 in spite of the revision of the Customs and Excise duties designed to produce the contrary effect. The percentage usings were as follows:—

1955	*1956*	*1957*	*1958*	*1959*
26.2	22.8	18.8	15.8	18.6

123. The Board's policy of encouraging the production of better quality Virginian flue-cured tobacco to replace as much as possible the imports of cigarettes and leaf tobacco was nullified owing to the erection by Amalgamated Tobacco Corporation (Mauritius) Ltd. of a factory to manufacture locally, but with 100 per cent imported leaf, a brand of cigarettes previously imported, and to the British American Tobacco Company (Mauritius) Ltd. simultaneously manufacturing a competing brand with 100 per cent imported leaf.

124. The comparison of values of imported and domestic leaf purchased by the manufacturers given in paragraph 121 is not strictly valid as the imports consist only of Virginian leaf whereas the domestic purchases include Amarello. The average C.I.F. value of Rs 10.28 for imported Virginian leaf compares with Rs 7.76 per kilo for domestic Virginian. The average values of Amarello flue-cured and air-cured purchased by the manufacturers were

Rs 6.41 and Rs 3.32 per kilo respectively. Domestic Virginian, blended with imported leaf, is used in the manufacture of the "*Embassy*" and "*Soirée*" brands of local cigarettes which sell in competition with imported Virginian cigarettes and with the two brands "*Mills*" and "*Matinée*" previously imported but now locally manufactured with 100 per cent imported Virginian laef.

Amarello leaf and some of the lower grades of domestic Virginian are utilised for the cheaper brands, selling below the price range of imported cigarettes.

Imports

125. Imports of unmanufactured leaf and cigarettes for the last two years are tabulated below.

	1958		*1959*	
	Kilos	*Value* Rs.	*Kilos*	*Value* Rs.
Cigarettes	104,559	1,912,374	46,110	892,701
Leaf :—				
Rhodesia	65,249	627,525	29,896	286,233
U.S A.	60,074	618,750	91,079	965,150
India	—	—	2,218	13,791
TOTAL LEAF ...	125,323	1,246,275	123,193	1,265,174
TOTAL	229,882	3,158,649	169,303	2,157,875

126. Although the usings of domestic leaf have increased from 449,239 kilos in 1958 to 462,899 kilos in 1959, the usings of imported leaf, instead of continuing to decrease, have increased from 84,205 kilos in 1958 to 106,285 kilos in 1959. The increase in usings of imported leaf as stated above, is a result of the local production of cigarettes made from 100 per cent imported leaf. This situation is receiving attention as it is anticipated that it will deteriorate further. In fact, as a result, the allocations of leaf from next year's crop have been reduced by about 100,000 kilos, usings of domestic tobacco in 1959 not having reached the estimated amounts.

Exports

127. Prospects of a regular export market remain discouraging although there is a possibility of the export of about 25,000 kilos of air-cured Amarello.

Tobacco Board Warehouse

128. The Tobacco Board has under consideration a project for an extension of its Warehouse. This enlargement would allow the segregation of crops and the systematic cleaning and disinfection of stores.

XIII. Foodcrops

129. The following tables have been prepared from data collected by the Agricultural Extension Services. Some 727 arpents more have been grown to foodcrops during last year :—

	Maize	*Manioc*	*Aroulilles*	*Sweet Potatoes*	*Ground Nuts*	*Irish Potatoes*	*Beans and Peas*	*Pineapple*	*Brinjal*	*Tomatoes*	*Ginger*	*Creepers*	*Mixed Vegetables*	*Total*
						AREA HARVESTED (Arpents)								
1958	883	72	85	340	371	1,043	1,027	63	372	1,855	60	678	2,246	9,050
1959	908	86	99	218	289	1,117	1,163	135	716	2,321	97	753	1,875	9,777
						ESTIMATED AVERAGE YIELD (Kilos/arpent)								
1958	650	5,000	4,000	3,500	950	4,250	1,000	5,000	10,000	4,250	8,000	20,000	10,000	—
1959	600	5,000	4,000	3,500	750	4,300	850	6,000	5,000	4,000	8,000	15,000	10,000	—
						ESTIMATED TOTAL PRODUCTION (Metric ton)								
1958	574	360	340	1,190	352	4,433	1,027	315	3,720	7,884	480	13,560	22,460	56,695
1959	545	430	396	763	217	4,803	989	810	3,580	9,281	776	11,295	18,750	52,635

130. The area shown above is effective acreage and includes the aggregate acreages of different crops grown on the same land in one year as well as foodcrops interplanted in sugarcane.

XIV. Livestock Division

Artificial Insemination Centre

131. The artificial insemination centre for cattle was maintained in good condition during the year.

Poultry Breeding Centre

132. A poultry breeding centre consisting of a main building, housing the staff, hatchery and brooder houses for day old chicks to 8 weeks old growers, 40 breeder houses with out-door double runs and a deep-litter house, was completed during the year at the Reduit Stock Farm. The buildings were equipped with up to date mammoth incubators and other equipment imported from the United Kingdom. 1,500 pedigree day old chicks of White Leghorn and Rhode Island Red breeds were imported from Australia as the nucleus breeding stock to initiate the project. The object is to produce under local conditions day old chicks and hatching eggs for sale at a cost within reach of the local breeders to step up the poultry industry in the Colony. The implementation of the scheme will also contribute towards the saving of foreign exchange on the imports of day old chicks as well as to reduce the risk of introducing poultry diseases into Mauritius.

Livestock Extension Service

133. The second new extension sub-office in Rivière du Rempart district was opened at Mapou, the construction of a third extension sub-office was started at Arsenal in the district of Pamplemousses.

134. During the year 8,034 cows were inseminated. The percentage success was 65 per cent which compares favourably with other artificial insemination centres under similar climatic conditions.

135. In addition 1,248 cases of assessments of pregnancy, 370 cases of enucleation of cystic ovaries; 448 difficult calving; 1,028 cases of nutritional deficiency complex; 680 cases of digestive disorders; 300 cases of mastitis and 650 other miscellaneous cases were atended to. The Extension staff also helped poultry breeders in the vaccination of their stock. Advice was given to breeders of poultry, pigs, goats, sheep and cattle on feeding, housing and general management problems. Some plans of improved cowsheds for the peasant cowkeeper were prepared.

Animal Health Laboratory

136. More equipment was imported to increase the efficiency of the laboratory. 403,800 doses of Newcastle disease vaccine and 147,500 doses of fowl pox vaccine were issued to poultry breeders for the control of these diseases. Routine examinations involving 1,280 post-mortems on poultry, turkeys, pigeons, ducks and other birds, goats, sheep, pigs, dogs and cats were conducted.

137. A survey of the incidence of *Streptococcus agalactiae* in milk cows, agglutination tests to detect brucellosis in cattle, a few analyses of suspected cases of trichomonas in bulls, the effect on chicks of an excess feeding of grit and the effect on cockerels of indiscriminate use of stilboestrol implantation for caponization are some of the investigations conducted during the year.

138. In addition detailed laboratory tests were carried out to identify the cause of an epizootic disease among dogs. This, after several weeks of work, was suspected to be distemper a disease which hitherto was unknown in Mauritius. The way in which the disease reached Mauritius has not been entirely determined. Work on the study of the causes of nutritional deficiency complex among dogs and the study of the causes of nutritional deficiency complex among local milch cattle continued.

139. Over 255 samples of milk from the Livestock Breeding Stations at Curepipe, Richelieu and Palmar were subjected to spot tests for pH value and positives confirmed through microscopic examination. This method proved invaluable in detecting early cases of mastitis which appeared in the Creole milk herds at the Breeding Centres.

Animal Diseases

Swine Fever

140. Mauritius remained apparently free of this disease throughout the year. Litters born after the vaccination campaign of 1958 were vaccinated.

141. Mass vaccination of pigs in Rodrigues continued throughout the year, 2,000 doses were supplied for the purpose. No fresh outbreaks have been reported during the year.

Bovine Tuberculosis

142. During the year 1,308 herd cattle and 483 dairy cattle were tuberculin tested with 10 per cent and 3 per cent reactors respectively. The reactors were sent for slaughter. The percentage of reactors amongst herd cattle rose during the year owing to the inclusion of previously untested herds in the programme. Government stock at the breeding centres were also tested, with negative results.

Poultry Diseases

143. The vigil on importation of poultry and other birds was maintained throughout the year through inspection at the sea and air ports of the Island. No new disease was introduced during the year.

144. Fowl pox and Newcastle disease though under control through vaccination continued to be the chief causes of mortality amongst birds.

145. Coccidiosis was the chief killer of chicks, but compared to previous rates of death the disease was definitely under control through improved management (deep litter system) and the use of drugs.

146. Lymphomatosis has been fairly widespread amongst growers. This is due to large scale imports of day old chicks as the disease is infrequently encountered among locally bred stock.

Livestock Breeding Station — Palmar

147. The station which is located on the East Coast of the Island provides representative conditions of the coastal belt. The area comprises about 600 acres mostly of rocky bush land.

148. During the year over 50 acres were mechanically cleared and put under acacia and other fodder crops. The intention is to develop the area for fodder production under the Capital Expenditure programme and to study the yields of different types of fodder under coastal conditions.

149. Under the development programme new quarters for the resident Stock Inspector were completed.

150. Owing to repairs to the roof of the main byre of the Curepipe Station the programme of transferring the grown stock from Palmar could not be implemented. For the same reason no fresh stock of Creole milk breed could be purchased for the breeding programme. During the year the Station held 92 Creole milk cattle, 50 herd cattle of the Ongole breed and 41 Anglo-Nubian goats. Eight Ongole cattle were sent to Diégo Garcia Island — a dependency of Mauritius — to study the possibility of rearing Zebu cattle there. Four Anglo-Nubian goats were sold to local breeders.

Livestock Breeding Station — Curepipe

151. The programme of improvement of the Creole breed through selective breeding moved slowly forward. At the end of the year threre was a total of 133 Creole cattle at the Station, comprising 6 bulls, 64 cows, 18 heifers, 26 bull calves and 19 heifer calves.

152. Owing to lack of space the purchase of Creole cattle for the breeding programme was limited to 8 animals only. The new byre's roof was completed at the end of the year, providing sheltered accommodation for a further 56 animals.

153. The following table gives a summary of 49 completed lactation records of the Creole cows for all stations during the year (twice daily milking).

	Average daily yield 305 days	*Range in milk yield* — *Minimum 305 days*	*Range in milk yield* — *Maximum 305 days*	*Average milk yield per completed lactation*	*Calving Interval (Days)*
Kilos ...	... 7.3	1,110	3,489	2,230	432
lb ...	... 16.1	2,242	7,675	4,906	(Av. of 17)

At Curepipe the total production of milk was 127,425 kg (280,335 lb), giving a daily average production per cow of 6.9 kg.

154. Nine Creole cattle from the Station were transferred to Rodrigues as part of the nucleus milk herd of the Dependency.

155. With the completion of the Danish-type piggery under the Development Programme, 5 in-pig gilts and a boar from South Africa and 4 in-pig gilts and a boar from Australia — all pedigree Large White — were imported to initiate the pig breeding scheme. Twenty-eight piglets were born and their disposal to breeders will start early in 1960.

Slaughter Houses and Meat Inspection

156. Inspection of the six slaughter houses and of meat and meat products imported during the year was maintained.

157. During the year permits to slaughter animals of the Creole milk breed on humane grounds and on quota were issued.

Importation of Animals

158. The following stock was allowed entry into Mauritius during the year:—

	Dependencies	*Foreign Countries*
Cattle	578	2,960
Sheep and goats	2,899	5,723
Poultry	15,236	—
Ducks and turkeys ...	124	—
Pigs	2,591	—
Horses	6	18
Dogs	71	18

XV. Land Settlement

159. The Land Settlement Committee held four meetings and examined various matters pertaining to conditions of tenure and selection of new tenants.

160. General maintenance works were performed by the tenants under the control and guidance of the Extension Officers. In some cases the tenants were advised to protect their land against erosion. The clear-felling of some 25 acres of fairly steep lands at Petit Sable was started to allow mechanical clearing.

161. The standard of crop husbandry on the settlements was in general satisfactory. Most of the unsatisfactory tenants were replaced by new farmers.

162. Forty-six tenants purchased the buildings on their holdings at the nominal price of Rs 500 fixed by Government. Most of them reside on their holdings.

163. The main activity on the Terre Rouge Settlement was the survey of holdings for the construction of the main irrigation canal. Tenants will contribute towards the construction of water gauges.

Extension of Settlement Schemes

The Vale

164. The area of 16 arpents available was divided into 15 holdings. These were leased early in the year.

Palmar

165. The whole area of an extent of 180 arpents was cleared and leased in holdings of about 2 arpents. By the end of the year 74 holdings out of the 90 allotted had been occupied. The other tenants are awaiting completion of the mechanical preparation of the land before taking possession of their holdings.

Béé Manique

166. Some two hundred acres were mechanically cleared. Owing to the very rainy conditions in that locality considerable difficulties were encountered in the mechanical preparation of the land. Of the 53 holdings which were allotted 38 had been occupied by the end of the year.

167. The main activity on the settlement was the construction of roads, culverts and the digging of drains. A demonstration plot of 4 acres was started for the benefit of prospective farmers. Contour planting of 15 acres of grass on the steeper slopes was completed.

Plaisance

168. About 150 acres of scrub land formerly part of Plaisance Aerodrome were cleared and parcelling of the land into holdings was started.

Relief Allotments

169. The allocation of land on the nine sections of the Relief Allotments is summarised as follows:—

	No. of Allottees	*No. of Huts*	*App. Acreage*
Curepipe	32	32	35
Malherbes	18	18	10
Barkly (East)	27	27	27
Barkly (West)	30	30	31
Richelieu	27	27	27
Bois Marchand (East)	20	—	20
Bois Marchand (West)	14	—	14
Elysée	38	—	38
Moona	6	6	12
Total	212	139	214

170. During the year 3 allottees were evicted, 4 resigned and there were 16 new comers. Seven allottees died. There were applications for plots from 96 people. The total amount of rent collected during the year was Rs 215.

XVI. Extension Services

Visits to Plantations

171. The main duty of the Extension Officers was to visit farmers and advise them on the improvement of methods of crop husbandry. In the course of these visits advice was given on the control of pests and diseases, the use of fertilizers and other agricultural practices. A total of 8,350 visits were made during the year.

Demonstration Work

172. The number of demonstrations of the correct use of fertilizers on sugar cane and foodcrops totalled 97. In most cases marked responses were obtained showing the obvious advantage of adopting sound agricultural practices. Increases in yields of up to 14 tons per arpent were recorded with sugar cane, and over 2 tons with potatoes. Cabbage and cauliflower showed increases of over 9 and 7 tons respectively. An increase of 1½ tons in the yield of French beans was also recorded. These improved yields were obtained when using balanced fertilizers as compared with the use of nitrogen alone which often constitutes the farmers' standard practice.

173. 209 demonstrations were conducted on the control of pests and diseases and eight on chemical weed control.

174. 133 evening meetings were held with farmers in various villages of the island. In the course of these meetings talks on agricultural topics were delivered and films of agricultural interest shown. This year the principal topics discussed were: *(a)* the control of the ratoon stunting disease of the sugar cane and *(b)* the control of the tomato fruit fly, *Pardalaspis cyanescens*, Bezzi.

Propagation and Distribution of Sugarcane Varieties

175. Cane planting material was supplied to farmers by the Sugar Planters' Cane Nursery of Pointe aux Sables. The following is the number of disease-free canes sold for commercial planting:—

	Canes
(a) B. 37172	49,490
(b) M. 147/44	19,284
(c) B. 3337	8,125
(d) M. 134/32	27,315
(e) Ebene	18,115
(f) M. 31/45	500
Total	122,829

Some 54,500 canes of the yet unreleased varieties M.202/46, M.253/48 and M.93/48 were also supplied to planters for experimental planting purposes at the request and under the control of the Mauritius Sugar Industry Research Institute.

176. Keen interest was shown in the new cane varieties which are still under observation and which are being propagated at the Pointe aux Sables Station for distribution if and when these varieties are released.

177. The propagation plots laid down in the Northern districts demonstrated the superiority of the varieties M.147/44 and B.37172 over the now declining M.134/32 which however is still occupying a large acreage in these regions. It must be pointed out, however, that the variety M.147/44 has a serious defect in that trashing is most difficult owing to an abundance of prickly hairs on the leaf sheath and to the trash not pulling off readily from the stalks. As a result of this, farmers are reluctant to grow this variety in spite of its high sugar content.

Cane Nurseries for Small Planters

178. The scheme continued to progress satisfactorily. A reservoir of 53,000 cu. ft. capacity for the storage of irrigation water was put into commission together with a 75 HP Electric Pumping unit for Overhead Irrigation. The water distribution system is of the semi-portable type with underground mains.

179. Buildings comprising offices, stores and housing accommodation for staff and personnel were also completed during the year.

180. Some 40 arpents of land were cleared and planted during 1959 bringing the area under cane for propagation purposes to nearly 65 arpents.

Occurence of Pests and Diseases

181. Bacterial wilt and late Blight were both responsible for serious losses in the tomato and potato crops. A disease observed for some years past on tomatoes mainly in the Black River district is now under study by the Plant Pathologist. It is believed to be caused by a fungus which has not yet been identified.

Fairly heavy attacks of halo blight on beans were observed in the North especially on the ' Victory ' bean variety. This disease is also under observation by the Plant Pathologist.

182. Control measures as demonstrated by the Extension Officers were satisfactorily taken up by farmers and the use of sprayers in the fields is now becoming current practice.

183. The control of the bean fly has now become a routine operation in bean cultivation by the more advanced farmers.

184. Fruit flies are at present the major pests of fruit and food crops in Mauritius. They cause considerable damage and their control is quite laborious. At present insecticides are the only practical means available to combat them. Fruit flies attacking cucurbits and tomatoes can be kept under control as long as the insecticides are continuously applied, but as soon as the control measures are relaxed aggressiveness is resumed resulting in heavy crop losses. The tomato fruit fly, *Pardalaspis cyanescens*, originally restricted to the North-Western sector of the Island has now been found in the Southern and Eastern districts. The farmers of these newly infested localities have been made aware by way of practical demonstrations of the control measures to be adopted.

Ratoon Stuntng Disease of Sugarcane

185. An active campaign against that disease was conducted during the year among small planters starting just before the beginning of the cane harvesting season. Lectures were delivered, farmers being advised to stop growing the M.134/32 variety which is highly susceptible to the disease and as far as possible to use planting material known to be disease free. They were also informed of the important role which cane harvesting knives played in the propagation of the disease and of the necessity of systematically disinfecting the knives with suitable chemicals such as Mirrol, Zephirol or Roccal. Posters showing the depressing effects of the disease on cane yields were distributed to almost every village organisation for display in suitable places.

Permanent District Demonstration Plots

(1) Arsenal Demonstration Plot

186. The cane crop amounting to nearly 17 tons on that station was not used as planting material as the varieties grown had not yet been released for propagation. All the canes were sent to a neighbouring sugar factory for crushing.

187. The quantity of foodcrops produced at Arsenal amounted to 8,706 kgs producing a cash return of Rs 2,866. The expenditure amounted to Rs. 8,809.

(2) Mapou Demonstration Plot

188. This plot produced 8,907 kgs of vegetables and foodcrops of various kinds giving a cash return of Rs 2,677 against an expenditure of Rs 6,636. It will be observed that the cash returns for both Arsenal and Mapou are low. This is mainly due to low yields recorded on these Stations owing to shortage of irrigation water.

(3) Vacoas Demonstration Plot

189. The Vacoas Demonstration Plot produced 24,350 kgs of vegetables which sold for Rs 6,353 against an expenditure of Rs 7,211.

(4) Rivière des Anguilles Demonstration Plot

190. Rivière des Anguilles Station produced 15,074 kgs of vegetables and 22 tons of sugarcane of which 10.6 tons were sent to a neighbouring factory for crushing, the balance being sold as planting material. The revenue amounted to Rs 8,881 for an expenditure of Rs 5,737.

191. Vegetable seeds and fruit trees have been on sale at Mapou and Rivière des Anguilles Demonstration Plots as from May. Up to the end of the year the public had not taken full advantage of that new service.

(5) Centre de Flacq Demonstration Plot

192. A fifth Demonstration Centre was initiated in July 1959 in the Flacq district on the same pattern as those existing elsewhere. The crops produced there by the end of December amounted to 4,994 kgs producing a revenue of Rs 1,966 for an expenditure of Rs 2,412.

193. A fair number of farmers visited the above centres where evening meetings are also a regular feature of the work.

Agricultural Teaching in Primary Schools

194. 616 routine visits were paid to school gardens for the purpose of advising the teachers in charge of gardens on their agricultural problems. As usual keen interest was shown by the teaching staff as well as by the pupils.

Control of Soil Erosion

195. Small cane growers cultivating lands on steep slopes are becoming more and more conscious of the necessity of adopting contour planting of the sugarcane. Fields which were contour-planted during the past 3 years gave excellent results. Visits were organised for farmers to inspect these fields in the course of 1959. Some 33 arpents of new land belonging to 28 different growers were contourplanted to sugarcane. To illustrate the interest shown by some planters in this method, a case occurred where a planter had already furrowed his field down the slope. On being visited and informed of the proper method he decided to fill up all the furrows and re-furrow his land along the contour as indicated by the Extension Officer.

Radio Information

196. Radio talks on agricultural topics were given monthly throughout the year.

Gardening Calendar

197. A gardening calendar comprising agronomical information on a wide range of crops grown in the island was published in bulletin form.

Local Production of Storable Foodcrops at Bée Manique

198. 20 arpents of land were cleared at Bée Manique for the production of storable foodcrops. A first crop of maize was grown on the land but owing to excessive rainfall a very small yield was obtained.

199. A small crop of garlic was also grown at Bée Manique with little success; a very poor yield was obtained owing to heavy attacks of nematodes.

200. 3½ acres of land were prepared for potato plantation. The crop sustained unfavourable climatic conditions as well as severe attacks of pests and late blight. The tubers lifted showed poor keeping qualities and a large number perished rapidly, as a result, it is believed, of the water-logged conditions that prevailed during growth. After the potato crop, groundnut was sown on the land.

201. 14½ arpents of land were interplanted to maize and beans. The latter was seriously affected by pod borer attacks the control of which by insecticides was rendered difficult owing to the continuous rains falling in the locality. The maize crop which is due for harvest in February 1960 is fairly promising.

Miscellaneous Activities

202. As in previous years, Extension Officers were called upon regularly to visit Crown lands for the purpose of assessing rental values or for advising Government on their suitability for future agriculture use. Extension Officers were also often requested to assess damage to crops from drift by herbicides used in the vicinity.

XVII. Experiment Stations

Curepipe Experiment Station

Development

203. Clearing was started on the remaining 10 acres of station land. However, owing to the absence of a substantial dry period in the latter part of the year only half the area was cleared before the end of December. Access roads were made and the five cleared areas put into cultivation, new grass trials occupying most of the area. Nine small fish ponds were constructed as part of a scheme to investigate the possibilities of fish farming for the small holder including the possibility of integrating this activity with cow-keeping. With this in view a small demonstration cow-shed, built with cheap local materials, has been built on the common bank between small ponds so that either can be used for the disposal of manure from the cow-shed and thus a fair opportunity is provided to determine the proper relationship between pond size and cow units. Minor works were undertaken to perfect the existing fish ponds including the provision of underground channels to supply the water. Six small henyards were constructed with cheap local materials.

Fodder

204. A new series of fertiliser trials on *Setaria sphacelata* was started towards the end of the year with the object of finding the optimum levels of application of nitrogen, phosphate, potash and lime. This work might lead to a reduction in the cost of production of fodder. To this same end closer spacing was also being tested with a view to maintaining the stand of *Setaria* free from weeds thereby reducing the cost of maintenance of the stand. The main areas under *Setaria* maintained their yields during the year at a good level with annual dressings of complete fertiliser and sulphate of ammonia after each cut. Where sulphate of ammonia was withheld for experimental reasons yields dropped most seriously.

205. In spite of the facts that land previously under fodder at Plaisance Airport was no longer available in 1959 and that the number of heads of livestock at the Breeding Centre had increased, adequate fodder supplies were maintained. The two tower silos were filled with cane tops Setaria and maize and the silage was fed from April to July. The silos were again filled with cane tops in August and September for next year. Green fodder and litter were supplied throughout the year at about the same level as in 1958.

206. At the end of the year plots of grasses were being established. The object is to secure suitable alternatives to *Setaria sphacelata*. Legumes were also being tried. Many of the species of grasses and legumes in these trials are new introductions to Mauritius. The Russian Comfrey planted out in 1958 has failed to fulfil its early promise. On the other hand lucerne, " acacia " *(Leucaena glauca)* and cannas *(Canna edulis)* have continued to show promise. " Acacia " in particular is growing better than expected under the cool wet conditions of Curepipe.

Orchard Crops

207. The seedling varieties of citrus continue to grow reasonably well. They are now well-established plants. Apart from these, plants of Marsh grapefruit and Valencia Orange on different rootstocks were planted during the year. As for the remaining established stocks it is planned to replace these with budded plants as soon as they are available.

Food Crops

208. Seasonal planting trials show the importance of timely cropping in this area. The proper growing season for nearly all the food crops is from August to January. A selection of vegetable crops was grown successfully as in 1958. Selection work on local maize continued. A large number of varieties of potatoes were tried out. As with grass, and indeed all crops, the need for manure and fertilizers at high levels was again apparent. Rice was grown successfully in one of the fish ponds in association with *Tilapia machochir* and *Tilapia nilotica*. The fish yielded 88 kgs per acre and the rice 986 kgs per acre. This production was realised in 3 months from January.

209. Bananas, pineapples, ginger, arrowroot and other crops are being tried with a view to ascertaining their possibilities in the wet zone.

Livestock

210. Investigations into the integration of ducks with fish farming were continued on an observation basis. The ducks have done well under this system. A good number of birds and eggs were sold to the public.

211. The number of geese have been increased and all are doing well. They have been of value in reducing the maintenance costs of fish ponds by grazing the surrounding grass.

212. The White Leghorn chicks received from Australia in May 1958 continued to do well. Other breeds being tried at Curepipe comprise Rhode Island Reds, Black Australorps and New Hampshires and these too are promising breeds. Selection is carried out in order to improve the flocks. Feeding trials are not yet completed.

213. The demonstration cowshed built in 1958 on one of the main fish ponds continued to operate in 1959. The benefit derived from the association could be seen in that the pond carried a high population of green algae as indicated by the water colour. As already reported a second demonstration cowshed, in simpler materials, was constructed between two small ponds to carry this investigation further.

Réduit Experiment Station

Development

214. Approximately two and half acres of land have been transferred to the Livestock Division for implementation of the Poultry Scheme. Equipment for the Overhead Irrigation plant has been received and erection of a pump-house has started.

Orchard Crops

215. The practice of not irrigating the citrus orchard had no adverse effect on the plants. Budding and grafting has been completed throughout the orchard. The plants are growing fairly well but many still continue to show some deficiency symptoms. Budwood has been taken from the mother trees for budding at Barkly Experiment Station.

216. Small new orchards of peaches and paw-paw were established.

217. Yield assessment of existing coffee plants is under progress and the best yielders will provide vegetative material for further propagation if results appear to warrant this.

218. *Cercospora* leaf spot has been detected on the banana variety collection and is now under observation.

219. Material free from mealy bug was used to start a new pine apple plantation which did not come up to expectation despite liberal treatment with manure and fertilizer. Degeneration of the planting material is suspected.

Grass and Fodders

220. *Setaria sphacelata* has yielded over 35 tons per acre in one year, with about two-thirds of the production in January, February and March. Supplies of fodder and litter to the Artificial Insemination centre at Réduit were maintained as far as possible.

221. Russian Comfrey *(Symphitum perigrinum)* gave very poor yields. Lucerne has given encouraging results and warrants further trial. Twenty new varieties or strains of grasses have been introduced and planted out in multiplication and observation plots at Réduit. It is intended to spread these to other stations to see how they behave under different conditions of climate and soil. Many are showing up well at this early stage.

Food Crops

222. Variety collections of cassava, yams, sweet potatoes and other crops were maintained. Towards the end of the year trials were laid down to sort out all these varieties. Eight acres of vegetable crops were grown for seed production. A fertilizer trial on maize had to be abandoned in the face of a heavy attack of rust. Three new rust resistant varieties introduced from Nyasaland have been planted out. Trials with a large collection of varieties of potatoes suffered from a heavy attack of bacterial wilt. One trial indicated that the old established and standard variety King George has a fairly high resistance to this disease. A second trial showed that the introduced varieties Saranac, Sebago and Factor have good possibilities. They yielded well and have an acceptable quality. A variety of groundnuts introduced from Northern Rhodesia has been planted in a supplementary plot to a main trial which contains the groundnut collection. This variety, Mani Pintar, is at this stage outstanding.

Barkly Gardens and Experiment Station

223. The bulk of the revenue for seeds came from the sale of peas and beans. Altogether 3,840 kilos of seeds, including 2,790 kilos of peas and beans were produced during the year. This seed was grown on an area of 28.5 arpents, 15 arpents being at Barkly and the remainder on other experiment stations.

224. Values of sales of seeds and plants over the last three years are tabulated below:—

	1957	*1958*	*1959*
	Rs	*Rs*	*Rs*
Sale of seeds	21,471	26,069	26,727
Sale of plants ...	14,618	16,244	13,759
Total ...	36,089	42,312	40,486

Development

225. Construction of a wall round the new lands was continued. Arrangements have been made to take over ten arpents of land from the adjoining allotments so as to increase the acreage under vegetable seed production. To improve and extend the existing overhead irrigation system a new pump and engine have been obtained and will be installed. The nursery has been equipped with a " Burgess " Mist Plant Propagator unit which will be of great use to the station.

Citrus

226. Routine monthly budding is being carried out on existing stocks with the object of training staff in the technique and getting preliminary information on the optimum time of year. Seeds of a number of citrus varieties have been introduced. Included are Waterkloof Sweet Orange, Java Grapefruit, Florida Rough Lemon, West Indian Lime and Dominica Wild Grapefruit. These have been sown at Barkly. Germination of the first three was quite satisfactory but a very large proportion of all seedlings had to be discarded because of bench root condition. Germination of the two last varieties was very poor. The seedlings of all these varieties have not yet reached a stage for budding.

Orchard Crops

227. The best varieties of avocado pear of Barkly were planted in a new orchard. Three-fourths of an acre of poor land was reclaimed and an orchard of mixed varieties of fruit trees was planted to provide planting material for the future. The letchi crop of 1959 was sold to merchants and produced a revenue of Rs 819; picking was carried out by the labour force of the station.

Vegetables

228. The policy of importing vegetable seeds from a different source each year for trial was continued. Importations were made this time from France. Grown alongside the local strains these imported strains proved to be inferior. The two varieties of cauliflower, Southern Cross and Italian Giant, imported in 1958 gave poor results.

Hydroponics

229. Work continued on a small trial scale with the Bengal System. It was found that lettuce, tomato, sweet peper and carrot grew very well in the basalt medium. A small unit was built on the roof top of the office of Barkly Gardens and proved to be quite satisfactory. It was also found that half drums (cut longitudinally) were excellent for this type of gardening on a small scale.

Richelieu Experiment Station

Development

230. Four new barns, 16′ × 16′ by eight tiers high, were almost completed at the end of the year. One barn with two furnaces half built into the barn and with a pair of flues and chimneys was completed. A second one with two furnaces built completely inside the barn, and also with a pair of flues and chimneys, was completed but for the flues. The remaining two barns, incorporating steam heat exchangers, were also nearing completion. An air curing shed built cheaply of simple materials was brought into use. A good deal of work was put into the improvement of the irrigation system. A new additional pump, with a capacity of 375 gallons per minute, with an FR–6 engine, was installed and connected with the permanent mains. A new pump has been obtained as a replacement for the original pump. It has a capacity of 240 gallons per minute. This pump is not yet installed. New orchards were established during the year including 4 acres of litchi, 2 acres of citrus and a further orchard of mangoes. Boundary tree planting continued using *Terminalia arjuna*, *Tecoma pallida* and *Cassia fistula*. Other developments comprised such items as road improvement and work on cheaply constructed silos.

Tobacco

231, *Seedbeds*. Experiments were continued on the control of weeds, pests and diseases on seedbeds and confirmed the results obtained during the preceding year.

232. On the occasion of the Open Day for Tobacco Growers held at Richelieu Experiment Station on the 13th May, a number of beds had been raised to show the effects of various treatments of *fungicides* and *nematocides* on the production of tobacco seedlings. Much interest was shown by growers. A demonstration was given of the application of sodium methyl dithiocarbamate (Vapam, Unifume) and ethylene dibromide (Nematox, E.D.B.) to tobacco beds. As a result of the seedbed experiments which this year's results confirm, the tobacco growers will be using sodium methyl dithiocarbamate for the control of eelworms and weeds on seedbeds. One quart of the 40 per cent w/w chemical is diluted to 2 gallons with water and applied uniformly on a bed of 100 square feet. This treatment is replacing ethylene dibromide, which requires an injector for its application and which has no herbicidal effect.

233. Tobacco growers will also be using zinc ethylene bisdithiocarbamate (Zineb, Murphane), for the contol of both soil borne and spot diseases in seedbeds. A pre-sowing application of 84 grams per 100 square feet of bed is first made in the form of a drench. This is followed by protective sprays, starting two weeks after germination, with a solution prepared with 6 to 12 ozs of the chemical in 25 gallons of water. This treatment has been recommended in place of Chesunt compound for the control of damping off diseases and copper sprays for the control of spots in beds.

234. Although methyl bromide has been confirmed as being the most efficient soil sterilant in experiments at Richelieu, its use has not been recommended to growess as it is a highly dangerous gas and should not be employed without skilled supervision.

235. Cloth covers on seedbeds are being rarely used by growers. The common practice is to use a 2 inch deep surface mulch of manure on the seedbeds. This is placed before treatment with nematocides and fungicides. It has withstood very heavy rains in trials without ill effects on germinating seed or seedlings.

236. *Fields.* Three acres of Yellow Mammoth tobacco were planted at Pamplemousses at the end of March. Early infection with frog eye *(Cercospora nicotianae* Ell. & Ev.) occurred. Early priming and regular sprayings with copper oxychloride were carried out and a number of experimental plots were sprayed with various fungicides consisting of copper oxide and copper oxychloride, zinc ethylene bisdithiocarbamate and Captan orthocide. These various treatments showed no noticeable differences in controlling the disease. The incidence of frog eye was very low at the first reaping in May and remained so up to the end of the crop. Altogether, 1,430 kgs of cured leaf, of a value of Rs 10,361 were produced from this area. This represents a per acre yield of 476 kgs at Rs 7.25 per kilo. Incidence of frog eye was very heavy in March at Richelieu and severely affected all the field trials which had been planted early in mid-February with flue-cured Virginian varieties. The seed production plots, planted with flue-cured Virginia at the end of February, and with Amarello burley at the beginning of March suffered very little from frog eye. There was some incidence of mildew *(Erysiphe cichoracearum*, DC) in one of the fields planted with flue-cured Virginian varieties. Sprayings with Karathane (dinitro i-methylheptyl phenyl crotonate) gave good control of mildew on a number of plantations in the Richelieu area.

237. Treatment with ethylene dibromide on a field scale was carried out machanically for the first time at Richelieu with a Shell two row applicator and two spring cultivator tines mounted on a Bentall two row disc ridger The E.D.B. was delivered in the centre of the row behind the spring tines and was then immediately covered up by the soil ridged up by the discs of the Bentall. Five acres were treated in one day at the rate of 30 kgs. of E.D.B. (containing 20 per cent ethylene dibromide) per acre. The treated area was kept wet by overhead irrigation for a week. Two weeks after treatment the Bentall disc ridger was used to cultivate the ridges; planting took place immediately after. The treated fields were outstanding for uniformity of growth, but a severe frog eye attack in March caused the loss of about half the leaves and ruined the experiment.

238. Five Black Shank resistant varieties received from U.S.A. at the end of 1958 were planted out in early March for observation and selection. Seed was obtained from this crop for planting again at the end of October at Richelieu and Pamplemousses. Three of the varieties, Vesta 30, Dixie Bright 101 and Dixie Bright 28, have shown considerable resistance to Black Shank disease and differ markedly in this respect from the remaining two. The leaf obtained from those varieties was of high quality. Tests will be continued on a larger scale in 1960. At the same time Yellow Mammoth sent in exchange to the U.S.A. has given good results in initial tests there. All other varieties of tobacco were planted out at Richelieu also at the end of October to test their resistance to Black Shank disease.

239. *Seed Production.* 21 kgs of clean seed of four commercial varieties were produced at Richelieu. The seed was stored for later issue to growers.

All tobacco seed was cleaned by passing through a seed separator in which the blast of air is produced by an electric fan.

240. *Curing.* At Pamplemousses Station, the two barns with a recirculating air system worked well and fuel consumption was very low at about 1 cord per curing. The quality of the cured leaf was good, at Rs 7.25 per kilo average.

The main point of interest on curing at Richelieu was the construction of the 4 new barns, two of which incorporate steam heat exchangers. These barns will facilitate more critical experimentation into the curing process than has hitherto been possible.

241. *Leaf Produced:—*

	Kgs		*Rs*
Flue cured Virginia (Pamplemousses)	1,429.6	at	7.25
Flue-cured Virginia (Richelieu)	2;015.2	at	5.57
Amarello Burley (Richelieu)	1,653.1	at	4.57

Groundnut

Potatoes

242. Certified seed of five main crop varieties were imported from Scotland at the beginning of the year and kept in store. Unfortunately, land was not available for planting out trials before mid-August with the result that there was a high loss in storage and the quality of the surviving seed of planting was very poor. Seed was also imported from other sources. viz., Australia, New Zealand and Réunion Island. This seed arrived in good time. The varieties were compared with the King George variety from the Union of South Africa, this being a very popular variety in Mauritius. Two varieties, Factor from Tasmania and Saranac from Australia, substantially outyielded King George, Factor being the outstanding one of the two. Several other varieties were of interest and will be tried again.

243. The variety Delaware, from Australia, which had given good yields at Richelieu when planted at the end of September 1958 was planted at Pamplemousses at the end of 1959. The variety went down badly to an attack of bacterial wilt and yields were poor. Small samples of seed of seven varieties from Kenya were planted at Richelieu in mid-August. Two varieties, Alpha and Pimpernel, yielded well.

244. A fertilizer trial with three levels of nitrogen, phosphate and potash at generally higher rates than previously was repeated. Blight affected the trial to some extent, and reduced its value. The best response was to phosphate, this being significant. As usual there was no response to potash.

Other crops

245. Victory and Pioneer dwarf beans were grown in considerable quantity at the station for seed production using the mechanical methods previously developed. Some tomatoes were also grown for seed production. Interplanting of various crops in cane was undertaken on a field scale observation basis towards the end of the year, varying methods and spacing being used. Maize was grown extensively both for seed and silage.

Mechanisation

246. A forage harvester was added to the range of equipment and proved very useful for handling fodder crops and silage crops at the various stations including the silage crops of maize at Richelieu. A reversible mouldboard plough was also a useful addition; it suits contour cultivation admirably especially where experimental work makes uniform cultivation essential. A mid-mounted mower has been found to be a more flexible tool and easier to handle than the rear-mounted machines previously used.

247. The Bentall Disc Ridger which had previously been successfully used for field ridging was used in conjunction with an E.D.B. applicator for the final preparation of tobacco fields. The Ferguson spring tine cultivator mounted on a 4′ tool-bar, proved a suitable machine for inter-row cultivation of sugar. A sub-soiler was acquired during the year and, used prior to ploughing with disc ploughs, greatly facilitated this operation. Other implements acquired and being tried comprise an off-set disc harrow, a kale cut-rake, a Howard Rotavator, and chaff cutters for silage making.

Dairy

248. The total milk production from the dairy amounted to 22,382 litres giving an average daily production of 4.90 litres per cow kept. The only disease of any consequence was mastitis which occurred in a number of cows, but treatment quickly cleared up the cases. Six bull calves and four heifers were born during the year.

249. The trench, pit and tower silos were all in use. The pit was filled with cane tops using molasses, and the others with maize. The total quantity of silage made amounted to 44 tons. Least wastage occurred in the tower silo and the trench silo was reasonably satisfactory. Poorest results were obtained from the pit where the amount of wastage was much too high. Since then the pit has been lined and this should reduce wastage to a more normal level in future.

Poultry

250. Feeding trials continued. No marked difference in the two feeds under test was found for the year's egg production, but the imported feed was superior to the locally mixed feed over the first half of the trial and the position was reversed over the second half. No outstanding differences in egg production appeared between the Rhode Island Reds, New Hampshires, and Australorps during the year, but White Leghorns introduced to the trial later in the year are giving superior production. It has yet to be seen if this performance will be maintained.

XVIII. Plant Pathology

TOBACCO

251. Brown spot *(alternaria longipes* (Ell. and Ev.) Mason) caused considerable damage in January to old plantations, following the onset of the rainy season, and delayed reaping. On this year's first plantations Brown spot was first observed in early July but in spite of delayed picking it failed to develop into epidemic form. Some old neglected fields were heavily spotted in October. On winter plantations in fields where Brown spot had occurred last year or early this year some Alternaria was seen in late November, but with early picking of the more susceptible mature leaves and a cool season, reaping again kept ahead of the disease in spite of the rainy weather. It appears that in properly run plantations the rapid development of epidemics is restricted to the wet hot summer months.

252. Frog eye *(Cercospora nicotianae* Ell. and Ev.) was severe in some first plantations. On winter plantations in fields which had been free of the disease last year, a mild attack occurred which may be attributed to inoculum from a single field in the locality infected last year from seedlings brought from an infected area.

253. In order to investigate the part played by inoculum from possible secondary hosts two small observation plots were raised at Reduit and Barkly Experiment Stations, located in areas where tobacco is not normally grown. They were free from the disease, but as they were planted in mid-season when the incidence of the disease is not very high, similar plots will be repeated earlier, in 1960.

254. *Cercospora nicotianae* Ell. and Ev. was identified from old tomato leaves forwarded to the Commonwealth Mycological Institute.

255. Pending the establishment of the occurrence of effective secondary hosts, spraying of seedbeds and sanitation in the field are still to be recommended. There was no apparent difference between treatments, or phytotoxicity, in field spraying with Perenox, Soltosan, Zineb, Blitane and Captan. The first leaves which had been heavily spotted were severely pruned before spraying started, and spots disappeared for some time, but later a few spots developed even on the top leaves, and barn spot developed on curing in all treatments.

256. Seedbeds were generally healthy with the new routine treatments of Vapam drenches and Zineb sprays. There was very little Scab *(Septomyxa affinis* (Sherb. Wallw.) and leaf spotting attributed last year to Anthracnose. Cultures from the leaf spots yielded a bacterium, and the spots were reproduced on inoculation.

Tea

257. Brown Blight *(Colletotrichum camelliae* Massee) caused severe defoliation on tea seedlings in the field and was troublesome in the propagation of one-eye cuttings, when the petiole region was affected causing leaf abscission or rotting of the axillary bud. A near-wilt of potted seedlings was attributed to unsatisfactory soil conditions or excess fertilizer. Severe defoliation of *Tephrosia candida* seedlings was caused by an unidentified fungus.

Potato

258. Late Blight *(Phytophthora infestans* (Mont) De Bary) although present throughout the season in some areas, occurred in several severe waves following rainy spells (according to fluctuations in the weather). In the absence of Late Blight there was often severe leaf scorch; *Pseudoplea trifolii* (Rostr) Peter, and *Stemphylium solani* Weber were identified from diseased leaves with other less important fungi in association. Bacterial Wilt *(Pseudomonas solanacearum* (E. F. Sm.) E. F. Sm.) caused great damage to the plots at Reduit Experiment Station. The King George variety was more resistant than the new varieties under trial. Early Blight *(Alternaria solani* Sorier) was first seen in epidemic form in late November. The leaf bronzing complex in its two reported forms was observed in November. Tuber rotting due to waterlogged conditions occurred in crops from Bee Manique and Nouvelle Découverte. In single plot observation trials alongside the standard copper oxychloride treatments, Captan and Zineb generally gave better foliage appearance, in various localities, but some copper plots were apparently less affected under severe Late Blight conditions.

Maize

259. Maize rusts *(Puccinia polysora* Und. and *P. sorghi* Schw.) were prevalent in plantations maturing during the wet summer months up to April. Subsequent plantations were only slightly affected, with *P. sorghi* predominating. In December the rust appeared again, few sori had erupted but chlorotic stippling of leaves indicative of high incipient infection was evident on all leaves on maturing crops. Leaf spots caused by *Ascochyta Zeae* Stout., were observed for the first time in two localities. Zineb sprays were very effective in controlling the two rusts in a small winter trial at Réduit Experiment Station. The incidence in the check plot was not very high, the percentage infection at harvest in leaves subtending the cob varying from 10 to 60 from one side of the plot to the other. Yields of treated and check plots were 408 cobs weighing 83 kilos and 360 cobs weighing 70 kilos. A further trial with Zineb has been started in December at Arsenal Extension Station where the leaf infection had been 100 per cent in April.

Groundnut

260. A cercospora Leaf Spot, smaller than the common one caused by *Mycosphaerella berkeleyi* Jenkins, was identified as *Mycosphaerella arachidicola* Jenkins, and a chlorosis of younger leaves developing in tip spotting was found to be due to *Pseudoplea trifolii* (Rostr.) Petr. Trial sprayings with copper oxychloride and Zineb were ineffective against these leaf spots.

Sweet Potato

261. A new leaf and stem blight caused by *Cercospora timorensis* Cooke caused severe damage to some varieties in the collection plot at Réduit Experiment Station.

Manioc (Cassava)

262. A new leaf spot *(Cercospora Hennigsii* Allessh.) caused some defoliation.

Beans

263. The two new leaf spots *(Phyllosticta phaseolina* Sacc. and *Cercospora canescens* Ell. and Mart.) caused appreciable damage. A yellow mosaic was common. Anthracnose was not observed on the commercial varieties Pioneer, Victory and Local Red. Halo Blight *(Pseudomonas phaseolicola* Dowson) is common and control in seed plots was attempted with copper oxychloride sprays and rogueing; leaf spot caused by *Isariopsis griseola* Sacc. was controlled with Zineb sprays, while rust *(Uromyees appendiculatus* (Pers.) Link.) did not respond to either fungicide. In seed box experiments Botrilex (PCNB) was effective against Collar rot caused by *Sclerotium rolfsii* Sacc.

Peas

264. A wilt caused by a *Fusarium sp.* was common. Leaf spot and Collar Rot caused by *Ascochyta* sp. was severe on Carter's Sugar Peas but only slight on Greenfeast and Local. Powdery Mildew *(Erysiphe polygoni* D.C.) was widespread; Karathane sprays and dusts and Phlatane sprays were effective, while copper oxychloride sprays were not.

Pigeon Peas

265. Two unrecorded diseases — Rust *(Uromyces dolicholi* Arthur) and Leaf Spots *(Cercospora cajani* P.Henn.) as well as Powdery Mildew *(Leveillula taurica* (Lev) Arnaud) are responsible for defoliation which may be severe at times.

Onions, Garlic, Leeks

266. Onions under humid conditions were damaged by Purple Blotch *(Alternaria porri* (Ell.) Clifferi) while garlic and leek were less affected. A dwarfing of garlic and onions, with symptoms resembling those caused by the stem and bulb nematode, occurred on a large scale under waterlogged conditions; no nematodes were found. Zineb sprays gave some control of purple blotch, while copper oxychloride was phytotoxic.

Tomato

267. A complex causing the drying of leaves of the local tomato, with mites and thrips in association, was widespread. Powderly mildew *(Leveillula taurica* (Lev.) Arnaud) and Grey Leaf Spot *(Stemphylium solani* Weber) first recorded last year, though not always apparent under dry conditions may be related to this complex. Both Powdery Mildew and Grey Leaf Spot in isolation can cause severe damage, the latter approaching a blighting effect under humid conditions. A new leaf spot caused by a *Mycosphaerella* sp. was recorded and *Cercospora nicotianae* Ell. and Evern., the pathogen of Frog eye of Tobacco, was identified on senile leaves by the Commonwealth Mycological Institute. Various cases of virus-like diseases hitherto unrecorded were observed but little progress was made towards establishing their identities. There seems to have been a loss of resistance to various diseases possibly due to varietal changes in the ' local ' tomato strains, which are now very susceptible to Bacterial Wilt *(Pseudomonas solanacearum* (E.F.S.M.) E.F.S.M., Fusarium Wilt *(Fusarium bulbigenum* var *Lycopersici* (Brushi) Wollenw), Late Blight *(Phytophthora infestans* (Mont.) De Bary), Grey mould *(Cladosporium fulvum* Cooke), Leaf Spot *(Septoria lycopersici* Spec.), Powdery Mildew and Grey Leaf Spot. A start was made in the introduction of resistant varieties; seven varieties resistant to Late Blight, Fusarium Wilt or Grey Leaf Spot, received from the United States of America, are being tried. Varieties resistant to Bacterial Wilt, the most crippling disease locally, and one which is not amenable to chemical control, is expected to be received soon. Fungicide sprays of copper oxychloride, or dithiocarbamates, or mixtures of the two, together with systemic pesticides have given satisfactory control of some of the foliage diseases. Hole disinfection with ethylene dibromide or Vapam was effective against root knot nematodes. Vapam was not effective against Bacterial Wilt in the field but was effective for potted plants.

Other Vegetables

Brassicae

268. Black Rot *(Xanthomonas campestris* (Pamm.) Dowson), was common on cabbage and cauliflower, the latter being also affected by another Bacterial Leaf Spot *(Pseudomonas maculicola)* (Mc Cull) Stev.). Damping-off *(Rhizoctonia solani* Kuhun), Downy Mildew *(Peronospora parasitica* (Fr.) Tul.) and White Ruts *(Cystopus candidus* (Lib.) de Bary) affected seedlings. Mature cabbage and cauliflower plants and seed bearers were affected by Bacterial Soft Rot *(Erwinia carotovora* (L. R. Jones) Holland), Cottony Rot *(Sclerotinia sclerotiorum* (Lib) de Bary) and Leaf Spot and Blight of Inflorescence *(Alternaria brassicola* (Schw.) Wiltsh). Petsai was affected by two new leaf spots, one identified as being caused by *Cercospora Brassicicola* P. Henn), the other apparently caused by a bacterium.

Beets

269. Beet root, sugar beet as well as Swiss chard were affected with Cercospora Leaf Spot *(Cercospora beticola* Sacc.).

Carrots

270. Blight *(Alternaria dauci* (Kuhn) Groves and Skolko) occurred, and may be responsible for the absence of carrots on the market during the summer months.

Chillies and Peppers

271. Powdery Mildew *(Leveillula taurica* (Lev.) Arnaud) and Leaf Spot *(Cercospora unamunoi* Castellani) caused defoliation and reduced yields. Virus diseases affecting yields and causing fruit deformation are common. Spraying with Phaltane gave satisfactory control of the fungus diseases.

Cucurbits

272. Downy Mildew *(Pseudoperonospora cubensis* (Berk. and Curt.) Rostov) was identified from green frame and ridge cucumbers and gerkins, but the local cucurbits are apparently resistant. Two new leaf spots *(Ascochyta cucumis Fautr.* & Roun and *Cercospora citrullina* Cooke) are common on some cucurbits often causing the leaves to perish. Powdery Mildew *(Erysiphe cichoracearum* D.C.) affects the Custard Squash (Patisson). Cucumber mosaic virus *(Cucumis* Virus I) affects the local pumpkin and the custard squash often causing deformation of the fruit. Karathane and Phaltane sprays gave satisfactory control of powdery mildew on custard squash.

Egg Plant

273. A new leaf spot *(Phyllosticta hortorum* Speg.) does not seem to be as important as *Cercospora melongenae* Welles which may cause severe defoliation. Bacterial Wilt *(Pseudomonas solanacearum* E.F.S.M. E.F.S.M.) and Phomopsis Wilt *(Phomopsis vexans* Harter) were common on improved varieties. The local curry variety ' Cipaye ' is resistant. Two varieties Kopek and Motale, resistant to Bacterial Wilt, were re-introduced in 1958 from South Africa. They are not of very good quality and are susceptible to Phomopsis wilt.

Lettuce

Marsonina

274. Three new leaf spots caused by *Marsonia panatoniana* Bul., *Cercospora longissima* Cugini and Traverso. *Septoria Lactucae* Pass. and rots caused by *Rhizoctonia solani* Kuhn and *Sclerotinia sclerotiorum* (Lib.) de Bary occurred mainly on seed bearers. 82

FRUIT

Banana

274 274

275. Three new leaf spots *(Mycosphaerella musicola* Leach, *(Cercospora musae* Zimm., *Cordana musae* (Zimm.) Honel and *Helminthosporium torulosum* Syd.) Ashby. were recorded. The first, the Sigatoka Disease of Fiji, which is important in several countries, was found on the dwarf banana which is the most important variety locally, but so far it does not seem to cause great damage. A mosaic probably the cucumber mosaic virus affects several varieties including the dwarf banana; the symptoms however seem to be seasonal and yields do not seem to be much affected. 175

Citrus

276. Chlorosis and deformation of foliage suggestive of deficiency diseases were observed. The condition was considered to be due to waterlogging. Corrective sprays were applied and drainage improved. Healthy trees bearing good crops of fruit were seen at Labourdonnais.

Custard Apple and Other Anona Spp.

277. Mummification of fruit caused by a *Gloesporium* sp. was common Death of some young plants was caused by *Sclerotium rolfsii* Sacc.

Grape Vine

278. A new leaf spot *(Pseudocercospora vitis* (Lev.) Speg.) was recorded on 'local' variety. Recently introduced varieties were susceptible to the recorded diseases especially Anthracnose *(Gloesporium ampelophagum* (Passer. Sacc.).

Mango

279. Anthracnose *(Gloesporium mangiferae* P. Henn.) caused considerable damage to foliage and inflorescence. Powdery mildew *(Oidium mangiferae* Berthet) may also have been responsible for failure of fruit set. Captan was effective against anthracnose.

Pineapple

280. In a plantation where wilt seemed to be under control, a brown discoloration of the flesh with a fusarium and a bacterium in association appeared to be seasonal. Spraying with Blitane at the flowering stage has been tried. There was some phytotoxicity from excess spray collecting in the lower parts of the young fruit.

Strawberries

281. Leaf Blight *(Dendrophoma obscurans* (Ell. & Ev.) Anderson) and leaf spot *(Mycosphaerella fragariae* (Tul.) Lindav) were controlled by Captan sprays while Grey Mould Blight of fruit *(Botrytis cinerea* Fr.) was best controlled by dusting with flowers of sulphur.

Ornamentals

282. Die back of roses due to *Phomopsis vepris* (NKE) Hohn. and a blight causing collar and branch rot of carnation with an Alternaria, probably *Alternaria dianthi* in association were recorded. Collar rots caused by *Sclerotium rolfsii Sacc.* was controlled by dusting or drenching with Botrilex.

Various

283. *Sclerotinia sclerotiorum* (Lib.) de Bary, was a common pathogen of numerous vegetables and ornamentals including lettuce, cabbage, celosia sp., antirrhinum, stock, owing to a cold, wet season.

Miscellaneous Diseases and Fungi

284. The following were recorded for the first time in Mauritius:—

On *Abrus precatorius* L. — Rust: *Sphaerophragmium* Sp.

" *Ageratum conyzoides* L. — *(a)* Leaf Spot: *Ragnhildiana ageratí* (Stev.) Stevens and Solheim.

(b) Hansfordia ugandensis (Hansf.) Hughes growing on *(a)*.

" *Aleurites* sp. — Leaf Spot: *Mycosphaerella aleuritidis* Ou.

" *Alyssum* sp. — Downy mildew: *Peronospora parasitica* (Pers. ex. Fr.) Tul.

" *Amaranthus candotus* L.—Leaf Spot: *Cercospora* sp.

" *Apple* — Leaf Spot: *Cercospora mali* Ell. & Ev.

On Bean — Leaf Spot: *Phyllosticta phaseolina* Sacc.

On Bignonia sp. — Leaf Spot: *Corynespora cassiicola* (Berk. & Curt.) Wei.

On Brassica petsai — Leaf Spot: *Cercospora brassicicola* P. Henn.

On Cabbage — Leaf Spot: *Septoria* sp.

On *Cassia occidentalis* L.: Downy mildew: *Pseudoperonospora* sp.

On Celery — Blight: *Septoria apii* Chester

On *Celosia* sp. — Powdery mildew: *Leveillula taurica* Pat.

On Coffee — Leaf Spot: *Pestalotiopsis royenae* (Guba) Steyaert *Glomerella cingulata* (Stonem) Spauld & V. Schrenk

On Coriander — Blight: *Alternaria dauci* (Kuhn) Groves and Skolko

On *Cryptomeria* sp. — *Dictyosporium* Sp.

On *Cyperus rotundus* L.—Unidentified rust

On *Dombeya* sp. — Rust: *Uredo* sp.

On *Euphorbia peplus* L. — Rust: *Melampsora euphorbiae* Cast Powdery Mildew: *Oidium* sp.

On *Euphorbia pulcherrima* Willd Rust: *Melampsora euphorbiae* Cast

On *Ficus pumila* L. — Rust: *Cerotelium fici* (Butl.) Arth.

On *Ficus rubra* Vahl. — *Stigmina* sp.

On *Gerbera Jamesonii* Hook — Grey mould: *Botrytis cinerea* Pers. ex. Fr.

On Groundnut — *Alternaria* sp.

On *Haemanthus multiflorus* — Grey mould: *Botrytis cinerea* Pers. ex. Fr.

On *Impatiens balsamina* L. — Leaf Spot: *Cercospora fukushiana* (Matsuura) Yamamoto

On *Jussiaea repens* L. — Powdery Mildew: *Leveillula taurica* Lev.

On Leek — Purple blotch: *Alternaria porri* (Ell.) Ciferri

On Lettuce — *Alternaria tenuissima* (Nees ex. Fr.) Wiltshire

On Maize — *Cladosporium sphaerospermum* (Reuz)

On Mango—*Alternaria tenuissima* (Nees ex Fr.) Wiltshire *Cladosporium* sp.

On *Manihot utillisima* Pohl. — Leaf Spot: *Cercospora henningsii* Allesch.

On Marigold — Leaf Spot: *Alternaria Zinniae* Pape

On Marigold — Leaf Spot: *Cercospora tageticola* Ell & Ev.

On *Moringa oleifera* L. — Leaf Spot: *Cercospora moringae* Thirumalachar and Govindu

On *Mucuna* sp. — Rust: *Uromyces mucuna* Rabenh

On *Oxalis* sp. — Leaf Spot: *Curvularia lunata* (Wakker) Boedyn

On *Paederia foetida* L. — Leaf Spot: *Cercospora* sp.

On Parsley — Leaf Spot and Blight: *Septoria petroselini* Desm

On *Piper nigrum* L. — Leaf Spot and Blight: *Glomerella cingulata* (Stonem) Spauld and V. Schernk.

On *Pithecolobium unguis-cati* Benth. — Leaf Spot: *Glomerella cingulata* (Stonem) Spauld and V. Schrenk.

On *Polypodium* sp. — Leaf Spot: *Glomerella cingulata* (Stonem) Spauld and V. Schrenk. *Cercospora* sp.

On Potato — Leaf Spot: *Alternaria tenuissima* (Nees ex. Fr.) Wiltshire. *Cercospora solanicola Atk. Phyllosticta* sp.

On *Ravenela madagascariensis* Gmel. — Leaf Spot: *Helminthosporium* sp. *Hendersonia* sp.

On *Salvia coccinea* Juss. — Leaf Spot: *Myrothecium roridum* Tode ex. Fr.

On *Solidago* sp. — Leaf Spot — *Cercospora bidentis* Thark

On *Sonchus oleraceus* L. — Leaf Spot: *Alternaria solani* Davis

On Sweet Potato — Leaf Spot: *Cercospora timorensis* Cooke

On *Symphitum perigrinum*—Soft Rot —Bacterial

On Tea — Leaf Spot: *Pestalotiopsis versicolor* (Speg.) Stayert

On flowers: *Cladosporium sphaerospermum* Penzig.

On *Thithonia diversifolia* Gray — Leaf Spot: *Cercospora tithoniae* Baker & Dale

On Tomato — Leaf Spot: *Alternaria tenuissima* (Nees ex. Fr.) Wiltshire

On *Trichodesma zeylanicum* R. Br. — Leaf Spot: *Cercospora trichodesmatis* Govindu and Thirumalachar

On *Vicia* sp. — Leaf Spot: *Stemphylium solani* Weber. *Cladosporium* sp. *Periconia byssoides* Pers. Ex Schw.

On *Voandzea subterranea* Thou — Leaf Spot: *Cercospora canescens* Ell. & Mart *Alternatria* sp.

On *Zinnia elegans* Merill. — Leaf Spot: *Cercospora Zinniae* Ell. & Mart. Powdery Mildew: *Oidium* sp.

On *Ziziphus jujuba* Lam. — Rust: *Crossopsora ziziphi* (Syd. & Butl.) Syd.

Control of Plant Diseases

285. Seed disinfection, soil fumigation and disease control in tobacco seedbeds have become established practice. Vapam and Zineb have replaced ethylene dibromide and copper preparations against root knot nematodes, damping-off and leaf spots. Field application of ethylene dibromide may soon be adopted as general practice. Miscellaneous fungicides were tried at the Extension Service Demonstration plots and in connection with the Seed Production Scheme, but no conclusive results could be obtained regarding the performance or organic fungicides as compared with fixed coppers in general use in the control of late blight of potato and tomato. Low volume spraying with motor knapsack sprayers, and combined fungicide/pesticide treatments were tried for speeding up treatments and labour saving. Chemical control of diseases might be profitable for the more important crops, but seasonal and regional variation in the incidence of diseases and uncertainty regarding marketing prices are serious obstacles to the adoption of preventive treatments by the small grower. Disease control through resistant varieties which has been quite successful for certain crops is being extended to others. Varieties of tobacco resistant to Black Shank and Bacterial Wilt, and the groundnut variety *cabris* also resistant to Bacterial Wilt, have been obtained in the past through local selection from introduced varieties. Resistance to late Blight and Bacterial Wilt might make potato and tomato growing on a large scale more profitable. A start has been made with the introduction of a few tomato varieties while potato will be dealt with next.

286. A guide on the control of plant diseases for the use of Extension Officers, the small grower and the amateur, is in prepaation.

Plant Inspection at the Customs and Airport, Quarantine

287. The control of the importation of plants and plant parts was effected throughout the year. Regulations were brought in line with the co-ordinated legislation under the Inter-African Phytosanitary Convention and import permits are now required for the importation of plants and plant parts, except for seeds of ornamental plants and seeds for consumption. Certificates of fumigation are required for all fresh produce from Madagascar to minimise the risk of introducing the vector of the Fiji disease of sugarcane. A greenhouse unit has been erected for the quarantine of fodder grasses with the object of preventing the introduction of diseases of the sugarcane, especially mosaic. A case of mosaic was detected in one bay of the Cane Quarantine Greenhouse; the infected cane and four contact varieties were destroyed. Imported sweet potato cuttings were also accommodated under quarantine conditions.

XIX. Entomology

Pests of the Pigeon Pea

(*Cajanus indicus* Spr.)

288. The imported parasites of cajan pests: *Bracon cajani* Mues. and *Eiphosoma annulatum* Cress seem to thrive in Mauritius. This year a record crop was obtained. In some localities 90–95 per cent of the pods were free from pests and in the areas where attack was most severe, only 15 per cent of the pods were affected.

289. A new parasite, *Hetorospilus etiellae,* is now being introduced from Puerto Rico through the Commonwealth Institute of Biological Control.

290. *Phanerotoma bennetti* received in 1958 was not recorded this year.

The Giant Snail (Achatina fulica Bowdish)

291. A search for *Lamprophorus tenebrosus* Walker, the recently introduced predator of the Giant Snail, again gave negative results. The predatory snail: *Englandina rosea* imported from Hawaii is now being bred in the laboratory. At present the only other practical methods of control are baiting with meta snail pellets or with slugit liquid and meta bran baits. *Helix aspersa* Muller is also a serious problem in some localities.

Fruit Flies

292. The introduction of parasites from Hawaii is being continued, but recovery in the field is disappointing. Mass breeding of the fruit fly parasites is contemplated.

Pests of Tomato

293. The tomato fly, *Pardalaspis cyanescens* Bezzi, which threatened tomato plantations throughout the island is now apparently under control. Dipterex has been found to reduce heavy infestations to negligible proportions. Dipterex has the added advantage of controlling *Heliothis armigera* Hb., the tomato fruitworm.

294. The Muscid fly, *Atherigona excisa* Thorns, also causes damage on fruits and is controlled successfully by Dipterex.

295. Identifications have shown that a new acarine pest on tomatoes, *Vasates lycopersicae* (Massee) exists in the Island. Tedion V–18 is now being used regularly for control. Rogor 40+p-chlorphenyl p-chorbenzene sulphonate, Phenkaptone and Chlortion can check the pest. Metasystox is effective, but owing to its accumulation in tomato fruits, is not recommended.

296. The above mentioned acaricides together with Kelbane can be used to control *Tetranychus marianae* McG., the major mite of tomatoes.

Pests of Potato

297. The potato tuber moth, *Gnorimoschema operculella* Zell, caused extensive damage on stored potatoes. Biological control of the pest is at present under consideration.

Pests of Citrus

298. The use of Dieldrex 15 on trunks has been found very effective against the black ant: *Technomyrmex detorquens* Wlk. Its application is being extended in orchards. Dimecron (phosphamidon) applied as sprays has been found to be an outstanding insecticide in the control of the citrus aphid, *Toxoptera citricidus* Kirk., and other scale insects parasitic on the plant as well as lepidopterous pests. On locally grown oranges and grapefruit, the mite *Brevipalpus phoenicis* (Geijskes) is at present most troublesome. An unidentified white fly also causes severe pseudogalls on leaves.

Pests of Tea

299. Two aphids were collected on tea for the first time. These are *Toxoptera aurantii* B.d.f. and *Macrosiphum (sitobion) africana* H.R.L. and both cause severe curling of tender leaves. The two species can be controlled by Dimecron and Rogor 40. Investigations are being carried out to see if these systemic insecticides do not have tainting effects. The soft brown scale, *Coccus hesperidium* L. also causes severe damage on young tea plants. On *Crotolaria* which is planted in interrows of tea bushes severe attacks of the Mirid bug: *Campylomma* sp. were recorded.

Pests of Tobacco

300. Careful investigations of tobacco pests have led to the discovery of a new species of mite in seedbeds which causes severe stippling and stunting of young leaves. Taxonomic and biological studies are in progress.

301. Dimecron has been found to give almost 100 per cent control against the tobacco leaf miner, *Gnorimoschema operculella* Zell. and against the tobacco aphis, *Aphis gossypii* Glov. Trials with M.C.47 and orthodibrom 8 are in progress.

302. Against the tobacco budworm Toxaphene and Dimecron have both been found to give excellent control, especially the former which is also cheaper. The tenebrionid beetle *Gonocephalum simplex* F. is a major pest of growing tobacco plants in some localities.

The Coconut Beetle: *Oryctes rhinoceros* L.

303. In the island of Diego Garcia, one of the Lesser Dependencies of Mauritius, where the rhinoceros beetle is a major pest, biological and insecticidal control is being enforced. Regular shipments of the Histerid predator *Leionota quadridentata* are being sent there. Insecticidal control is carried out on young palms using BHC/fine sand mixtures in the leaf axils.

304. The Carabid *Scarites madagascariensis* is also being collected in Madagascar for despatch to Diego.

305. Attacks of *Raoiella indica* Hirst have been especially severe on seedling and adult palms. Spraying with Duphar Tedion V–18 or Rogor 40 + P – chlorphenyl P—chlorbenzene sulphonate or Metasystox gives good results.

Stomoxys Research

306. The two common species of stable flies in the island are *Stomoxys nigra* Macq. and *S. calcitrans* L. Insecticidal routine residual sprayings on walls with Malathion, Diazinon, Baytex, Dipterex, Trolene and DDT, together with Malathion and Diazinon in baits, brought marked reduction in fly populations. Fogging with pyrethrins and synergists (using swingfog machine or microsol apparatus) is also necessary, especially in wet localities. Baytex is a most promising insecticide, for it has a very long residual effect. Diazinon is better than DDT in some localities.

307. The use of dimethyl phthalate as a repellent is being investigated.

308. Associated with stable flies is *Musca domestica vicina* L. This fly breeds in farmyard manure. Insecticide control of the larvae with Diazinon, Malathion and Agrocide 25 per cent W.p is being carried out.

Miscellaneous

309. The banana weevil, *Cosmopolites sordidus* Germ., has been found to be ubiquitous in the island. In an attempt to control it two Histerid parasites, *Leinota quadridentata* and *Plaesius javanus* Erichson, were introduced. Further investigations are in progress.

310. Reports of severe attacks on breadfruit and mango trees by *Batocera rufomaculata* Degeer have occurred in many areas and the introduction of two hymenopterous egg parasites: *Louricia oviora* Ferriere and *Ooencyrtus batocerae* Ferriere is under study. Sporadic damage to *Albizzia procera* (Bois Noir Blanc) by *Xystrocera globosa* Olivier was also noticed. The introduction of the hymenopterous parasite: *Sclerodermus immigrans* Bridw. is being considered.

311. *Nacoleia praeteritalis* Wlk., the leguminous leaf tier and *Lecithocera effera,* Meyr, caused severe damage on bean at Richelieu.

312. *Utetheisa cruentata* Butl. which was a serious pest of *Tournefortia argentea* L. in past years can now be successfully controlled by Toxaphene and Dimecron.

313. A number of consignments of plants and fruits infested with pests were intercepted at port of entry.

314. Systematic collection of insect and acarine pests was pursued during the year. Many new specimens were obtained. A list of the new records is given below:—

Hymenoptera

Microphanurus seychellensis K. *(Scelionidae)*

Eumenes campaniformis esuriens F. *(Vespidae)*

Lepidoptera

Tephrialis vau-sema Hups. *(Noctuidae)*

Sceliodes laisalis Walk. *(Pyralidae)* (on fruits of *Solanum melongena* L.)

Diptera

Syritta spinigera Loew *(Syrphidae)*

Syritta sp. nr. *luteinervis* de Meij *(Syrphidae)*

Pseudolynchia canariensis (Macq.) *(Hippoboscidae)* (=maura Bigot)

Elassogaster arcuatus Heud. *(Platystomatidae)*

Atylotus agrestis Wied. *(Tabanidae)*
Ogcodes sp. nr. *Clavatus* Beck. *(Acroeceridae)*
Glaurocara flava Thoms. *(Tachinidae)*
Pachycerina sp. *(Lauxaniidae)*
Homoneura sp. nr. *laxifrons* Curran *(Lauxaniidae)*

HEMIPTERA

Euthetus sp. nr. *pallescens Dist. (Coreidae)*
Pachybrachius sp. nr. *lounsberyi* Dist. *(Lygaeidae)*
Pachybrachius sp. *(Lygaeidae)*
Rhyparochromus sp. *(Lygaeidae)*
? *Lethaeus* sp. *(Lygaeidae)*
Taylorilygus sp. nr. *appicalis* Fieb. *(Miridae)*
Guisardus sp. *(Miridae)*
Deraeocoris ostentans Stol *(Miridae)*
Allodapes sp. *(Miridae)*
Macrosiphum (Sitobion) africana H.R.L. *(Aphididae)*

ORTHOPTERA

Jagrehnia madecassa (Sauss) (Blattidae)
Blatella germanica (L.) *(Blattidae)*
Holocompsa nitidula (Fabr.) *(Polyphagidae)*
Niphetogryllacris sp. *(Gryllacrididae)*
Trigonidium cicindeloides Ramb. *(Gryllidae)*
Euscyrthus bivittatus Guen. *(Gryllidae)*
Oecanthus sp. *(Gryllidae)*
Conocephalus iris Serv. *(Tettigoniidae)*
Homorocoryphus differens Serv. *(Tettigoniidae)*

COLEOPTERA

Onthophagus lugubris F. *(Copridae)*

ACARINA

Vasates lycopersicae (Massee) — *(Eriophyidae)*

315. The following insects collected by the Entomologist during his visit to Diégo Garcia have also been identified for the first time from that locality: —

Coccinella repanda Thunb. (Col. — *Coccinellidae)* (Loc. Noroit)

Scholastes vicarius Heud. (Dip. — *Ottidae)* (Loc. East point)

Ailopus savignyi Krauss (Orthoptera — *Acrididae)*

316. Following requests of parasites from other countries the following consignments of insects were despatched:—

(1) *Scolia orytophaga* Coq. to Fiji

(2) *Cryptochaetum monophlebi* Skuse to South Africa

(3) *Chilocorus nigritus* Muls. to Diégo Garcia

317. Severe infestation of flour by the "rust-red flour beetle", *Tribolium castaneum* Herbst., was reported at the New Mauritius Dock, Port Louis. The infestation was controlled by spraying and dusting using Malathion and Perthane and fogging with pyrethrins.

318. The Entomologist delivered lectures in Zoology and Agricultural Entomology at the College of Agriculture.

319. The Entomologist delivered lectures to officers of the Extension Service and gave a radio talk on the biological control of pests of the pigeon pea.

320. To protect the consumer it has become necessary to test new insecticides. This has now become a considerable task which, however, must be faced as some claims made by manufacturers for their insecticides have been found not to hold good under local conditions.

321. Spraying equipment was modernised by the purchase of some interesting new sprayers including the swingfog and several types of power sprayers. In view of the fact that some of the new insecticides are absorbed by the skin, protective equipment and clothing were purchased.

322. A small collection of insects brought by the Plant Pathologist from Rodrigues revealed the presence of the following insects in the Dependency:—

Name of Insects	*Hosts*	*Insecticides recommended*
Lecithocera effera, Meyr ...	... Sweet potato ...	Dimecron
Heliothis armigera Hb. ...	... Tomato	Dipterex
Antherigona excisa Thoms ...	... Tomato	Dipterex
Gnorimoschema operculella Zell	... Tobacco	Dimecrom kills pests. Tests are in progress as to tainting effect on leaves.
Malanoagromyza phaseoli Coq	... Bean	Pre-dressing of seeds with Aldrin gives one month control.

XX. Agricultural Chemistry

Laboratory

323. The modernisation and enlargement of the laboratory was completed in the course of the year.

Analyses

324. During the year 1,000 samples were analysed, involving about 1,500 determinations.

325. *Fertilizers.*—About 70 samples of simple and compound fertilizers were analysed for their content of nitrogen, phosphoric acid and potash.

326. *Water.*—One sample of irrigation and two samples of boiler feed water were analysed.

327. *Foodstuffs.*—Samples forwarded by the Livestock Feed Factory and the Livestock Division were analysed for the purpose of ration blending. Sampling of the various materials received for blending has been standardized and is now being done on every 10th bag entering the factory, irrespective of the bulk of the consignment. Imported poultry feeds and those prepared by the Livestock Feed Factory were analysed for purposes of comparison.

328. *Fodder.*—A one year experiment on *Setaria sphacelata* was laid down by the Agricultural Division at Réduit Experiment Station. Samples of weekly cuts were taken from March 1958 to February 1959, and analysed for dry matter and protein. Average figures for the dry and the rainy season respectively were as follows:—

	Dry season	*Rainy season*
Dry matter	24·5	13·8
Protein % (on fresh material)	2·0	1·4

329. An experiment was started in August by the Livestock Division relative to the type of fodder fed to cows owned by small cow keepers in the different regions of the Island. 15 monthly samples were forwarded for determination of moisture, protein, fibre, ash, carbohydrates, calcium and phosphorus. The experiment is still in progress.

Miscellaneous

330. *Milk.*—The analysis of milk from the Creole Cattle Breeding Centres was continued. 637 samples were analysed for fat content. The average for the year was 3.97 per cent.

331. *Sugar Products.*—The routine analysis of molasses and alcohol for export was carried out regularly on the same lines as in previous years.

332. *Lime.*—Analyses were also made of lime for use in building works, sugar manufacture and as soil improver.

333. *Soil.*—Soil samples from the new tea plantations at Midlands were tested for exchange capacity. This was found to be very low necessitating an immediate application of organic matter as well as fertilizers.

334. The fields of Curepipe Experiment Station were tested for the pH of the soil. The average was 5.2, with a maximum variation of 0.2 from field to field.

335. *Silage.*—In conjunction with the Agricultural Division, routine analyses were carried out of material ensiled at the experiment stations, and of the silage itself. Some figures are reproduced below. *(ii)* and *(iii)* represent the same material ensiled at the same time. It is interesting to note the fall in protein from 7.5 to 4.2 and in pH from 4.6 to 3.9 resulting probably from the difference in the period of ensiling.

Type of silo	*Material ensiled*	*Period of ensiling*		*Dry matter*	*Analysis Protein % on dry matter*	*pH*
(i) Tower ...	Setaria+ Cane Tops	... 6 months ...	At time of ensiling ...	29	5·6	—
			Silage	23	5.0	3.8
(ii) Tower ...	Maize	... 7 months ...	At time of ensiting ...	26	7·7	—
			Silage	24·7	4·2	3·9
(iii) Trench ...	Maize	... 3 months ...	At time of ensiling ...	26	7·7	—
			Silage	24·5	7·5	4·6
(iv) Pit ...	Cane Tops ...	2 months ...	At time of ensiling ...	26·9	4·1	—
			Silage	28	4·5	4·4

XXI. Agricultural Engineering

General

336. By the end of 1959, the Engineering Division was fully staffed but activities were still handicapped by shortage of funds and by the delay in delivery of machinery and tools ordered from abroad. It was however possible to achieve the major objectives and to extend the activities of the Division.

Servicing of Departmental Machinery and Vehicles

337. The servicing and preventive maintenance system for all vehicles, tractors and machinery of the Department was given top priority and formed the bulk of the regular work of the Central Workshop. Service schedules and comprehensive records of the technical characteristics, and amount of labour and materials employed in the servicing of all equipment were kept. Returns showing these details were made to the relevant divisions at the end of the financial year.

338. The following servicings were carried out:—

Tractors	35
Vehicles	42
Stationary engines ...	11
TOTAL ...	88

339. The Central Workshop, new store and Resident Officer's Quarters planned under the Capital Development Programme were completed except for certain fittings and items of equipment which are still not available. The transformation of the old store into a drawing office and the building of a bagasse store are under way.

Local fabrication of equipment

340. Numerous items of agricultural equipment were fabricated for various divisions of the Department. These included:—pump and pipe fittings, 1 smoothing roller, seed dressers, fumigation tanks, machine stands and various building and machinery fittings.

341. The following items of office furniture were made for the Department:—21 tables and desks, 45 chairs, 5 shelves and 5 cupboards.

342. 7 signboards complete with tubular stands were made.

Erection, repairs and reconditioning of buildings and machinery

343. A 100 cu.ft Prestcold Cold Room was erected at Barkly for seed storage.

344. A Crittal Greenhouse was erected at Réduit for the quarantine of imported grasses.

345. 68 crates of damaged tea machinery were reconditioned at Rivière Dragon.

346. The slab roof of an overseer's quarters was repaired and rendered leak proof.

347. The incinerator at the Plant Inspector's Office at Port Louis was repaired.

Planning and control of departmental building works

348. The Division was responsible for the preparation of plans and for the costing of various building projects such as plant inspection building at Plaisance, fumigation rooms at Port Louis, a weights room and greenhouses at Reduit.

Advisory work

349. The classification and valuation of the old machinery of the Albert Oil Mill were effected for the Ministry of Finance.

350. Advice was sought by various divisions prior to the placing of indents on a large variety of equipment such as irrigation piping and pumps, engines, incinerators, boilers, tobacco barns, and humidifiers.

Miscellaneous

351. Classes in Engineering Workshop practice were held at the workshop of the College of Agriculture by the Agricultural Engineer for 3rd Year students.

352. Tractor drivers of the Department were trade tested.

Livestock Feed Factory

353. The total production of the Livestock Feed Factory was almost double that of last year and the number of feeds produced was increased to 16 in spite of a drastic self-imposed cut in both finances and staff.

354. In order to meet the increased demand for animal feeds, new equipment for the factory has been ordered from the U.K.

355. The factory continued the manufacture of feeding stuffs for poultry, cattle, pigs and horses. The following ingredients were used in the manufacture of these feeds: maize, wheat, rice, flour, oil cakes, oats, barley, fish meal, lucerne, wheat bran, bone meal, dried milk, meat meal, wheaten flour, pollard, cod liver oil, molasses, yeast, ferrous sulphate, salt, copper sulphate, cobalt sulphate, manganese sulphate, sulphur and antibiotics. Steps were also taken further to reduce the prices of feeds by encouraging direct tenders from overseas.

356. A cheap source of feed for ruminants continued to be marketed in the form of ureated molasses containing 70 per cent molasses, 27 per cent bagasse, 3 per cent urea, plus trace minerals consisting of iron, copper, cobalt and manganese sulphates and sulphur. The use of ureated molasses spread considerably and many sugar estates are now equipped to prepare their own supply using equipment designed along the lines of that used at the Livestock Feed Factory.

357. The effort to popularize the use of cow and pig feeds by the marketing of a cheap mixture is beginning to bear fruits. The sale of cow feeds increased by over 100 per cent and that of pig feeds by 300 per cent over last year's. Dairy cubes made by the factory are now easily available in a form which cannot be adulterated. The cubes are distributed through a contractor.

358. 1,883 tons of stock feed were manufactured and 1,910 tons sold. Sales at the Rose Hill Extension Shop also rose sharply.

Manufacture of yeast tablets

359. The manufacture of yeast tablets from yeast powder imported from South Africa was continued; 16,170,000 tablets were made. 123,500 tablets were sold to the public; 225,000 and 14,570,000 tablets were issued to the Education and Medical Departments respectively.

360. In order to encourage sales to the public the presentation of the tablets will be made more attractive and to this end suitable packing materials have been ordered from the U.K.

361. Investigation are also being made to fortify the yeast tablets with ferrous sulphate so that the product can be used to combat anaemia.

Manufacturing Accounts

362. The annual statement of accounts of the Livestock Feed Factory is given in Appendix E.

XXII. Fresh Water Fisheries

Development

363. Reference has already been made to the construction of 9 new small fish ponds at Curepipe to provide facilities for the study of the problems of fish farming on the scale of a small holder including the integration of cow keeping with fish farming. A watchman's house was constructed at Five Ways so that poaching of fish, which was formerly making results unreliable, could be stopped. Underground channels to supply the Curepipe ponds have been installed.

Investigation

364. Work continued with the three species *Tilapia melanopleura, T. macrochir,* and *T. nilotica*. The main interest centred on the two latter species, *T. melanopleura* being used at a stocking rate of only 10 per cent. Trials in progress include stocking rates, further fertilizer trials, monosex and breeding trials. Best results to date have come from monosex culture with *T. macrochir* and *T. nilotica* where yields of around 1,000 lbs per acre were obtained.

XXIII. Rodrigues

365. Work on the Agricultural Development Plan continued on the lines previously explained in the 1957 and 1958 reports. It was however hampered by two cyclones and a drought which visited the island during the year.

366. On the 13th of February the first cyclone passed 75 miles west of Rodrigues giving gusts of 75 mile per hour and causing appreciable damage to buildings and plantations. On the 21st of April a second cyclone passed to the east of Rodrigues and the anemometer registered 117 miles per hour before it was destroyed. Gusts exceeded this strength at the height of the cyclone. This cyclone brought the biggest catastrophy in living memory to Rodrigues. Government allowed free issue of round timbers for houses destroyed or damaged after inspection; also a rebuilding grant of Rs 30 per house totally destroyed. In addition funds were made available to provide relief work on road construction. Gifts of clothing were distributed to the population. Further losses were caused by a drought which went through to the final months of the year. The island's forests were 75 per cent destroyed and will take at least 10 years to rehabilitate. The fruit crops of mango, banana and peach were totally destroyed as well as the main food crops of maize, manioc, sweet potatoes. At the close of the year the problem of housing was still demanding the resources of many families.

367. The year saw an encouraging continuation of the development plan and its support from the farmers was more solid than previous years. Much time and work had however to be devoted to relief works, reconstruction and rehabilitation as a result of the disastrous cyclone damage. Employment on development works to a large extent provided work to distressed people. Development work therefore assumed the role of relief work under adverse conditions.

Land Settlement

368. By the close of the year 800 unit farms had been prepared and leased out to farmers. About 600 of these are on the steeper slopes and 200 on the gentle lower slopes where terracing and irrigation waters from 12 valley storage dams have been made available. About 200 acres of the cattle walk are also to be developed for such schemes. This acreage of cattle walk at present is carrying about 100 head of stock but when terraced and irrigated produces 200 family farms capable of producing a gross income of Rs 1,000 per acre per annum with such crops as garlic, onions, beans, vegetables and maize. In addition Government leases such land at Rs 80 per acre per annum,

whereas the grazing fee on the Cattle Walk is Re 1 per head per year. The reduction in grazing capacity by 100 head of stock is more than balanced by the increased stock carrying capacity of the elephant grass strips in the hills; indeed at the close of the year 200 cattle were held in the breeding centres and 19 cattle were housed and being fed by the upland unit farmers. The weight of the population is of course strongly in favour of the Cattle Walk settlement schemes in that they offer an attractive transference of population from the over-populated, eroded, hill lands to the under-populated fertile rich agricultural lands.

369. Some opposition to works has been displayed by about a dozen large cattle owners on the grounds that grazing areas are being reduced to make room for land settlement schemes.

Experimental and Demonstration Plots

370. The 10 departmental demonstration farms are within this developed area and have been very useful in showing farmers the new farming method. The original opposition to the new farming techniques has now been replaced by enthusiasm, particularly in the case of animal production, where the Department now has a large number of applications from unit farmers for purchase of milk cows and pigs for fattening. These applications are being met as far as possible from the production of the six established Government Breeding Centres.

371. All the unit farms in the developed areas are regularly inspected by departmental officers who advise on improved crop and animal husbandry and encourage farmers to build their dwelling houses on their farms. It is also now possible for the department to easily identify unsuitable tenants.

Livestock Breeding Centres

372. The stocking of the breeding centres and demonstration plots at the close of the year was:—

	Cattle	*Pigs*	*Goats*	*Sheep*
Oyster Bay Centre	39	66	103	27
Malabar Centre	21	—	—	—
Le Chou Centre	41	39	—	—
St. Gabriel Centre	43	35	—	—
Marechal Centre	18	—	—	—
Baie Topaze Centre	33	—	—	—
3 Soleils Plot	—	—	—	5
Chateau Fleur Plot	2	—	—	—
Pt. Brule Plot	1	1	—	—
La Ferme Plot	2	2	—	—
Pt. Gabriel Plot	1	1	—	—
Latanier Plot	—	—	—	5
Palisade Plot	—	—	—	5
Pt. Brule Plot	—	—	—	9
Total	200	143	103	51

373. During the year 17 cows, 35 piglets and 21 goats were sold to farmers.

Machinery and Equipment

374. 20,546 lb of paddy passed through the rice mill producing 11,101 lb of rice, 1,110 lb of groundnuts were processed producing 220 lb of oil and 870 lb of cake.

Coconut Plantation

375. At Anse Ally the 30 year old coconut plantation of 400 trees which had been blown down by the cyclone was replanted.

XXIV. Lesser Dependencies

376. Copra production continued to be the main industry in the Chagos and Agalega. Most of this is exported to Mauritius where it is processed into edible oil, soap and poonac at Innova Factory. These Islands could be developed and the output of copra considerably increased. At present, however, the yields represent not more than a fraction of what appears to be possible with proper crop husbandry. The returns of nuts per acre and the yield of copra therefrom are both very low.

377. The table below gives the mean production figures for the years 1955–56, 1956–57 and 1957–58 with the estimated yields calculated therefrom.

	Mean 1955–58						
	Total acres	*acres % nuts*	*No. Nuts*	*Metric Tons copra*	*Nuts p. acre*	*lbs copra % nuts*	*Tons copra p. acre*
Peros	2,900	2,600	3,900,000	461	1,500	260	0.18
Salomon	2,000	1.800	2,100,000	264	1,200	270	0.15
Diégo	6,000	4,000	4,800,000	568	1,200	260	0.14
Agalega	6,000	4,000	3,500,000	386	900	240	0.10
Total ...	16,900	12,400	14,300,000	1,679	1,160	260	0.14

378. The plantations are operating at a loss and under present standards of cultural practice returns are not likely to become economic. Peros and Salomon may be expected to maintain an aggregate yield of 6,000,000 nuts per annum. Diego Garcia potentially the most productive is a dying island as a result of falling yields consequent on unthrifty trees and the increasing ravages of the Rhinoceros beetle. Agalega has an appreciable area of young palms and provided that cyclone damage does not occur production should rise to about 5,000,000 nuts over the next 7 to 8 years.

379. In Diego, the Rhinoceros beetle *(Oryctes Rhinoceros)* has built up to propotions that render the economic future of the island problematical. *Scolia ruficornis* which was introduced by the Department in 1951 from Zanzibar has become established but has failed to control the pest. The Entomology Division has in hand the introduction of other insects that may prove more effective than *S. ruficornis*. It is not expected however that any satisfactory control of *O. Rhinoceros* in Diego can be achieved unless important rehabilitation works are undertaken as at present the whole state of the island is such as to provide ideal conditions for the breeding and multiplication of this pest.

380. The Chagos and Agalega are completely devoid of cattle. Previous attempts to establish cattle having failed it is believed by the settlers that cattle cannot be raised in the islands. Past failures however might be ascribed *inter alia* to the use of an unsuitable breed and acute mineral deficiencies in regard to soil conditions and the chlorotic vegetation. Towards the end of the year, a few animals of the Ongole breed were shipped to Diego as a pilot project and further shipments are planned should the animals thrive satisfactorily.

381. The Director of Agriculture visited the Chagos and Agaléga in February and has submitted a detailed Rehabilitation Scheme which, it is believed, would enable the plantations to operate economically.

XXV. General

Visits

382. Overseas visitors to the Department during the year included:—

Major Patrick Wall, M.C., V.R.D., Conservative member of Parliament for the Haltem Price Division of the East Riding, Yorkshire;

Mr. R. W. Mitching, Managing Director of H. I. Symons (Agencies), Ltd.;

Honourable J. A. R. King, A.F.C., M.L.C., Member of Kenya Legislative Council and member of the Royal Agricultural Society of Kenya;

Dr. R. H. Kirby of the Tropical Products Institute;

Dr. Knowles A. Ryerson, Dean, College of Agriculture, University of California.

Missions

383. The Director of Agriculture visited the Chagos and Agaléga, to investigate and report upon the local copra industry.

384. The Plant Pathologist visited Rodrigues in November to survey the general disease situation in the Dependency.

385. The Director of Agriculture attended the Annual Conference in Madagascar of the *Comité de Collaboration Agricole Maurice — La Réunion — Madagascar.*

APPENDICES

A. Staff

(as at 31st December)

Appointment	Name	Remarks
Director of Agriculture ...	M. N. Lucie-Smith, M.A., B.Sc., Agric. (Lond.), Dip. Agr. (Wye,) D.I.C.T.A. (Trinidad)	
Deputy Directors	G. A. North Coombes, O.B.E., B. Sc. Agr. (Read), Dip. Agr. (Maur.)	
	M. D. ffrench-Mullen, D.I.C.T.A., AI.C.T.A.	Assumed duty 26.1.59

Administrative and Finance Divisions

Appointment	Name	Remarks
Chief Finance Officer ...	I. Felix	On pre-retirement leave 26.4.59
	Y. Aumeeruddy (acting) ...	
Chief Executive Officer ...	R. S. Buguth	

In addition there are:

3 Senior Executive Officers
4 Executive Officers
2 Higher Clerical Officers
12 Clerical Officers
1 Confidential Assistant
8 Typist/Stenographers

Agricultural Division

Appointment	Name	Remarks
Senior Agricultural Officers	W. A. Wright, B. Agr., Dip. Agr. Sc. (Cantab)., A.I.C.T.A.	Assumed duty 3.10.59
	A. d'Emmerez de Charmoy, M.B.E., Dip. Agr(. Maur.)	
Agronomists	L. A. Suzor, Dip. Agr. (Maur.)	Acting Senior Agricultural Officer in Charge Agricultural Division 7.7 to 3.8.59
	K. Lutchmeenaraidoo, B.Sc., Agr. (Read). Dip. Agr. (Maur.)	

AGRICULTURAL DIVISION—*continued*

Appointment	Name	Remarks
Horticulturist	J. H. Julien, Dip. Agr. (Maur.)	
Agricultural Officers ...	G. Bauristhene, Dip. Agr. (Maur.)	Is also Superintendent of Schools
	P. Régnard	
	L. Moorlee, Dip, Agr. (Maur.)	
	J. Marot	
	I. Fakim, Dip. Agr. (Maur.)	
	M. Sooltangos, Dip. Agr. (Maur.)	
	D. Lalji	
	S. Moutia, B. Sc. (Agr.), Dip. Agr. Econ., Dip. Agr. (Maur.)	Appointed 24.8.59

In addition there are:

13 Assistant Agricultural Officers	1 vacancy
1 Surveyor	
1 Assistant Surveyor	
8 Overseers Grade I	
6 Overseers Grade II ...	1 vacancy

AGRICULTURAL CHEMISTRY DIVISION

Appointment	Name	Remarks
Chemist	S. Belcourt, B. Sc., Dip. Agr. Sc. (Wales) Dip. Agr. (Maur.)	
Assistant Chemist	F. Berchon, Dip. Agr. (Maur.)	On pre-retirement leave 29.5.59

In addition there are:

3 Scientific Assistants ...

PLANT PATHOLOGY DIVISION

Appointment	Name	Remarks
Plant Pathologist	L. Orieux, B. Sc. (Lond.), D.I.C.	
Assistant Plant Pathologist	S. Félix, Dip. Agr. (Maur.)	

Plant Pathology Division—*continued*

Appointment	Name	Remarks
In addition there are:		
	2 Plant Inspectors	1 vacancy
	1 Scientific Assistant ...	1 vacancy

Central Board Division

Appointment	Name	Remarks
Registrar	S. Staub, A.R.T.C. (Glas.) A.M.I. Mech. E., Dip. Agr. (Maur.)	On leave 16.4 to 15.7.59 Ag. D.D.A. up to 25.1.59
Assistant Registrar and Chief Chemist	P. J. Galea, Dip. Agr. (Maur.)	On leave 18.1. to 9.5.59—Ag. Registrar 11.5 to 15.7.59
Accountant	J. G. Gnany A.A.C.C.A. ...	On leave 1.8 to 30.12.59
Senior Assistant Chemist ...	—	Vacant
Assistant Chemist ...	R. Thélémaque, Dip. Agr. (Maur.)	
In addition there are:		
	1 Investigational Officer and Weighbridge Inspector	
	3 Senior Test Chemists	
	25 Test Chemists (crop only	
	25 Samplers (crop only)	

Agricultural College Division

Appointment	Name	Remarks
Principal	J. R. Lagesse, B. Sc. (Lond.)	
Lecturers	R. Latulipe, B. Sc. (Lond.) ...	
	B. Roy, B. Sc. Agr. (Wales) Dip. Agr. (Maur.)	
	1 Vacancy	
Assistant Lecturers and Laboratory Demonstrators	P. Guerandel, Dip. Agr. (Maur.)	
	R. Burrenchobay B. Sc. (Edin.)	On Contract
	F. G. Carver, Dip. Agr. (Maur.)	Appointed 17.1.59

Engineering Division

Appointment	Name	Remarks
Agricultural Engineer ...	E. Limfat, M. Sc., A.M.I.B.A.E., B. Sc., A.C.G.I., A.M.I. Chem. E.	

ENGINEERING DIVISION—*continued*

Appointment	Name	Remarks
Supernumerary Agricultural Engineer	W. Smith, N.D.A., C.D.A., D.T.A. (Trinidad), N.D. Agr. E., A.M.I.B.A.E.	On contract—Ag. Senior Agricultural Officer i/c Agricultural Division from 1.1 to 6.7 and 4.8 to 20.10.59
Assistant Agricultural Engineer	M. Morad	Appointed 3.5.59 (on temporary basis)

In addition there are:

1 Scientific Assistant
1 Supervisor, Yeast Factory and Maize Mill

ENTOMOLOGICAL DIVISION

Appointment	Name	Remarks
Entomologist	A. Moutia, Dip. Agr. (Maur.) F.R.E.S.	On pre-retirement leave 7.6.59
Assistant Entomologist ...	J. E. A. Orian, B.Sc., F.R.E.S., F.Z.S., Dip. Agr. (Maur.), R.A.C.	Acting Entomologist from 8.6.59

In addition there is:

1. Scientific Assistant

LIVESTOCK DIVISION

Appointment	Name	Remarks
Senior Veterinary Officer ...	A. Darné, F.R.C.V.S., Dip. Agr. (Maur.)	
Veterinary Officers ...	J. U. D. Shuja, M.R.C.V.S.	
	S. Lionnet, B.V.Sc., M.R.C.V.S., Dip. Agr. (Maur.)	Resigned 1.5.59
Animal Husbandary Officer	I. H. Proverbs, B.Sc. Agr. Animal Husbandry, M.Sc (Nutrition)	On secondment from Nyasaland from 31.8.57
Laboratory Technologist ...	L. Webb, Dip. Bio. (Lond.) A.I.M.L.T. (Lond.) M.I.B. (Lond.)	
Senior Stock Inspectors ...	W. Haddon	
	C. Delaitre, B. Agr. (N.Z.) ...	Acting Animal Husbandry Officer to 31.3.59

In addition there are:

1 Scientific Assistant
12 Stock Inspectors
20 Livestock Assistants

Tea Division

Appointment	Name	Remarks
Tea Officer	R. B. J. Deane	
Assistant Tea Officer ...	D. N. Andrews	On leave 2.4.59 to 28.12.59
Agricultural Officer ...	A. Baissac, Dip. Agr. (Maur.)	On leave to 27.2.59 Acting Assistant Tea Officer 2.4.59 to 28.12.59

In addition there are:

2 Assistants Agricultural Officers	
5 Overseers Grade II ...	1 seconded permanently and 1 seconded up to 30.9.59 to Midlands Estate

Rodrigues Division

Appointment	Name	Remarks
Senior Agricultural Officer	P. L. Hotchin, O.B.E., B.Sc. Agr. (Leeds), D.T.A. (Trinidad)	On leave 6.9 to 12.12.59
Agricultural Officer ...	A. E. Farla	

In addition there are:

2 Assistant Agricultural Officers	
1 Stock Inspector	Vacant
1 Overseer, Grade I... ...	Vacant
8 Overseers, Grade II	

Fisheries Division

Appointment	Name	Remarks
Fisheries Officer	J. de B. Baissac, R.A.C.	
Chief Inspector	J. Momplé	

In addition there are:

3 Inspectors
3 Sub-Inspectors
16 Head Guards
36 Guards

B. Composition of the Principal Boards and Committees

(i) Board of Agriculture, Fisheries and Natural Resources

Ex-officio Members

The Director of Agriculture — *Chairman*
The Conservator of Forests — *Vice-Chairman*
The Deputy Financial Secretary *(Economics)*

Members of the Legislative Council

The Honourable R. Rey
The Honourable K. Jagatsingh
Dr. the Honourable L. Teeluck
Dr. the Honourable L. R. Chaperon
The Honourable D. Napal (from April 1959)

Representatives of Millers

Dr. P. O. Wiehé, C.B.E.
Mr. Robert Doger de Spéville

Representatives of Planters

Mr. Maurice Martin
Mr. Hassam Nazroo

Representative of the Chamber of Agriculture

Mr. L. H. Garthwaite

The Board held three meetings during the year.

(ii) Agricultural College Advisory Board

The Director of Agriculture — *Chairman*

Nominated by His Excellency the Governor

The Honourable F. S. Chadien, M.L.C.
Dr. P. O. Wiehé, C.B.E.
The Honourable S. Boolell, M.L.C. (up to March 1959)
The Honourable D. Napal, M.L.C. (from April 1959)

Nominated by the Chamber of Agriculture

Mr. L. Baissac, M.B.E.
Mr. R. Hein, Q.C., *Chevalier de la Légion d'Honneur*

Nominated by the Société de Technologie Agricole et Sucrière

Mr. René Leclézio
Mr. P. de Sornay, *Officier de la Légion d'Honneur*

Nominated by the Association of Former Agricultural Students

Mr. René Noël

The Board held five meetings during the year

(iii) Central Board

Mr. S. Marion, District Magistrate — *Chairman*

Mr. Maxime Rey
Mr. F. North Coombes } *Millers' Representatives*

Mr. Roland Ducler des Rauches
Mr. Jascaran Dookun } *Large Planters' Representatives*

Mr. M. Burrenchobay, M.B.E.
Mr. J. Chundunsing (to 5.12.59)
Mr. R. B. Jagessur (from 6.12 to 31.12.59) } *Small Planters' Representatives*

The Board held thirty-four meetings during the year.

(iv) Tobacco Board

Ex-Officio Members

The Director of Agriculture — *Chairman*
The Commissioner of Excise — *Vice Chairman*
The Accountant General or any officer of his Department deputed by him
The Agronomist or any officer of the Department of Agriculture nominated by the Director of Agriculture
The Manager, Tobacco Warehouse

Appointed by His Excellency the Governor

The Manager of the British American Tobacco Co. (Mauritius) Ltd., or his representative
Mr. A. G. Rey
Mr. R. Ducler des Rauches
Mr. A. Furreed
Mr. P. Jheelan

The Board held eighteen meetings during the year.

(v) Land Settlement Advisory Committee

The Senior Deputy Director of Agriculture — *Chairman*
The Civil Commissioner (North)
The Civil Commissioner (South)
The Civil Commissioner (Moka—Flacq)
The Civil Commissioner (Plaines Wilhems — Black River)
The Registrar of Co-operative Societies
The Senior Agricultural Officer i/c Extension Service
The Honourable R. Balgobin, M.L.C.
Mr. Hassam Nazroo

The Committee held four meetings during the year.

(vi) TEA COMMITTEE

The Controller of the Tea Industry (Director of Agriculture — *Chairman)*

Consumers' Representatives

The Honourable V. Govinden, M.B.E., M.L.C. — *Vice Chairman*
The Honourable B. Ramlallah, M.L.C.

Manufacturers' Representatives

Mr. L. Ramdin
Mr. J. Pilot

Planters' Representatives

Mr. M. Ramdin
Mr. P. N. A. Harel

Additional Appointed Members

Mr. J. Jourdain (Resigned September 1959 on leaving the Colony)
Mr. M. Martin

The Committee held nine meetings during the year.

C. Legislation

Ordinance No. 12 of 1959 ...	To validate a resolution of the Legislative Council reducing the excise duty on all leaf tobacco produced in the Colony and to amend the Tobacco (Consolidation) Ordinance accordingly.
Ordinance No. 20 of 1959 ...	The Sugar Industry Reserve Funds Ordinance, 1959.
Ordinance No. 29 of 1959 ...	The Tea Industry Control Ordinance, 1959.
Proclamation No. 9 of 1959 ...	To proclaim the rate of the duty leviable under the Central Board (Cost of Administration) Ordinance, 1951, on the sugars of the 1958 crop exported from the Colony.
Proclamation No. 10 of 1959 ...	To prescribe the conditions under which the importation of live plants of all sorts from Madagascar shall be permitted into Maurtius.
Proclamation No. 17 of 1959 ...	To control the importation of certain articles.
Proclamation No. 21 of 1959 ..	To authorise the use of large nets for fishing at specified places during the period extending from the 1st October 1959 to the 31st January 1960.
Government Notice No. 9 of 1959 ...	The Sugar Industry Reserve Funds Ordinance, 1948.
Government Notice No. 40 of 1959 ...	The Prevention of Cruelty to Animals Ordinance, 1957.
Government Notice No. 59 of 1959 ...	The Tea Industry Control Ordinance, 1949.
Government Notice No. 73 of 1959 ...	The Quarantine Ordinance, 1953.
Government Notice No. 75 of 1959 ...	The Tea Industry Control Ordinance, 1949.
Government Notice No. 84 of 1959 ...	The Tobacco Consolidation Ordinance

D. List of publications and contributions to Literature by Officers of the Department of Agriculture during 1959

Name of Author	*Title of Paper*	*Name, Volume No. Page Nos of periodical in which published*
Anslow, R. C. ...	Fodder Production from hedges of acacia	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 2, pp. 99–102.
Anslow, R. C. and Belcourt, M. S.	The use of maize for ensilage	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 4, pp. 174–178.
Darné, A.	Principe moderne de l'elevage artificiel des poussins	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 5, pp. 226–229.
Deane, R. B. J. ...	General Notes on the opening up of new tea lands in Mauritius	Publication No. 4, Department of Agriculture, Mauritius.
D'Emmerez de Charmoy, A.	La lutte contre la mouche des tomates. (Causerie radio-diffusée par le M.B.S. le 6 Mars 1959)	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 4, pp. 179–182.
Johnson, L.	Investigations on the culture of Tilapia in Mauritius—Part I	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 3, pp. 109–126.
Johnson, L.	Investigations on the culture of Tilapia in Mauritius—Part II	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 4, pp. 158–171.
Orian, A. J. E. ...	Report on a visit to Diego Garcia	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38 No. 3, pp. 127–143.
Orian A. J. E. and d'Emmerez de Charmoy, A.	La lutte biologique contre les insectes s'attaquant à l'ambrevade (Interview radio-diffusée de M. A. J. E. Orian par M. A. d'Emmerez de Charmoy)	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 6, pp. 298–301.
Orian, G.	Une maladie du théier et d'autres plantes causée par un champignon à propagules	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 1, pp. 21–24.
Webb, J. L. and Lionnet, S.	Notes sur les premiers cas d'aspergillose observés à Maurice	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 38, No. 1, pp. 18–20.
Service de Vulgarisation Agricole	Guide de Culture Potagère	Bulletin No. 92, Department of Agriculture, Reduit.

E. Richelieu Livestock Feed Factory

Manufacturing account of the Animal Feeding Stuff Department for the year ended 30th June, 1959

To :	Rs. c.	By :	Rs. c
Stock of raw commodities on 1.7.58	181,469 99	Stock of raw commodities on 30.6.59	221,732 61
Purchasers	595,892 26	Cost of production transferred to Trading account	624,103 84
Wages	52,768 32		
Electrictty (power)	4,722 00		
Aloe bags and threads ...	10,983 88		
Total	845,836 45	Total	845,836 45

Trading account as at 30th June, 1959

To	Rs c.	By :	Rs. c.
Cost of production from Manufacturing account ...	624,103 84	Sales	652,098 67
Stock of manufactured goods on 1.7.58	6,677 36	Stock of manufactured goods on 30.6.59	7,530 70
Gross profit transferred to P. and L. account... ...	28,848 17		
Total	659,629 37	Total	659,629 37

Profit and Loss Account as at 30th June, 1959

To :—	Rs. c.	By :—	Rs. c
Stores	5,238 65	Gross profit from Trading account	28,848 17
Electricity (lighting) ...	46 20	Transport by lorry	2,580 00
Motor spirit	1,056 39	Net loss c/f	8,851 71
Rent	1,260 00		
Travelling	917 74		
Salaries of temporary clerk	3,154 12		
Insurance	417 61		
Repairs to lorry	1,721 95		
Timber and planks	859 15		
Aggregate	45 00		
Crown Agents	2,809 39		
Telecommunications Department ...	182 46		
Railway	1,251 65		
Petty expenses	1,050 73		
Depreciation :—			
Lorry (1/8 of 2,918.81) ... Rs c. 583 76			
Cubing and Pelleting machine 5% of 57,301.62 ... 2,865 08			
	3,448 84		
Salaries due (staff)	16,820 00		
Total ..	40,279 88		40,279 88

Balance Sheet of the Animal Feeding Stuff Department as at 30th June, 1959.

LIABILITIES	Rs c	Rs c
Accumulated profits	188,504 79	
add Profit and Loss a/c 57/58	13,848 91	
		202,353 70
Creditors		119,220 94
Salaries due (Staff)		16,820 00
TOTAL ...		338,394 64

ASSETS	Rs c	Rs c
Stock of commodities :—		
Raw	221,732 61	
Manufactured ...	7,530 70	
		229,263 31
Accountant General (advance)		30,354 92
Aloe bags and threads		2,852 78
Molasses tank ...		800 00
Safe		250 00
Lorry	2,918 81	
less depreciation ...	583 76	
		2,335 05
Cubing and Pelleting Machine	57,301 62	
less depreciation ...	2,865 08	
		54,436 54
Spectrophotometer		9,250 33
Net *Loss* c/f ...		8,851 71
TOTAL		338,394 64

Statement of Animal Feeding Stuffs processed during the year ended 30th June 1959

	Kilos	Kilos In	Kilos Out
RECEIVING DEPARTMENT :—			
Stock on 1.7.58			
Poonac	7,690		
Molasses	157,297		
Fish Meal	8,596		
Salt	271		
Urea	762		
Bagassilo	49,745		
Lucerne	1,840		
Baled Bagasse	56,625		
Wheat Bran	87,234		
Bone Meal	3,470		
Cod Liver Oil	387		
Oats	32,480		
Milk (dried)	1,050		
Meat Meal . ..	12,576		
Wheaten Flour	19,120		
		439,143	
PURCHASES :—			
Poonac	174,505		
Fish Meal	94,775		
Lucerne	52,420		
Wheat Bran	369,720		
Rice Sweeping	822		
Oats	99,420		
Cod Liver Oil	10,770		
Meat Meal	100,420		
Salt	500		
Beans	750		
Cotton Seed Cake	56,905		
Dried Milk	2,580		
Wheaten Flour	36,450		
Bone Meal	16,080		
Molasses	100,720		
		1,116,837	
Carried over ...		—	

	Kilos	Kilos In	Kilos Out
Brought forward ...		—	
TO MILLING DEPARTMENT:—			
Poonac	153,275		
Beans	750		
Cotton Seed Cake	56,905		
Rice Sweeping	822		
			211,752
TO MIXING DEPARTMENT:—			
Molasses	115,180		
Fish Meal	57,940		
Salt	605		
Bagasillo	12,280		
Lucerne	53,725		
Baled Bagasse	12,415		
Wheat Bran	271,645		
Bone Meal	8,790		
Cod Liver Oil	6,060		
Oats	58,800		
Dried Milk	2,505		
Meat Meal	58,655		
Wheaten Flour	54,782		
			713,382
TO SALES:—			
Molasses	9,176		
Wheat Bran	1,665		
Bone Meal	1,500		
Lucerne	12½		
Oats	455		
Dried Milk	20		
Meat Meal	5		
Cod Liver Oil	1		
			12,834½
STACK LOSS:—			
Lucerne	447½		
Wheat Bran	6,809		
Cod Liver Oil	2		
Fish Meal	81		
Meat Meal	6		
Bagassillo	37,465		
			44,810½
BALANCE OF STOCK ON 30.6.59:—			
Poonac	28,920		
Molasses	133,661		
Fish Meal	45,350		
Salt	166		
Urea	762		
Lucerne	75		
Baled Bagasse	44,210		
Wheat Bran	176,835		
Bone Meal	9,260		
Cod Liver Oil	5,094		
Oats	72,645		
Dried Milk	1,105		
Meat Meal	54,330		
Wheaten Flour	788		
			573,201
		1,555,980	1,555,980

	Kilos	Kilos In	Kilos Out
MILLING DEPARTMENT:—			
From Receiving Department.			
Poonac	153,275		
Beans	750		
Cotton Seed Cake	56,905		
Rice Sweeping	822		
		211,752	
TO FLOUR STORE:—			
Poonac Flour	151,435		
Cotton Seed Flour	56,230		
Beans Flour	750		
Rice Flour	810		209,225
Industrial Loss	2,527		2,527
		211,752	211,752
FLOUR STORE:—			
Stock on 1.7.58			
Poonac Flour	385		
		385	
FROM MILLING DEPARTMENT:—			
Poonac Flour	151,435		
Cotton Seed Flour	56,230		
Beans Flour	750		
Rice Flour	810		
		209,225	
TO MIXING DEPARTMENT:—			
Poonac Flour	150,615		
Cotton Seed Flour	56,145		
Beans Flour	750		
Rice Flour	810		
			208,320
STACK LOSS:—			
Poonac Flour	105		
Cotton Seed Flour	35		
			140
BALANCE OF STOCK ON 30.6.59:—			
Poonac Flour	1,100		
Cotton Seed Flour	50		
			1,150
		209,610	209,610
MIXING DEPARTMENT:—			
From Receiving Department			
Molasses	115,180		
Fish Meal	57,940		
Salt	605		
Bagassillo	12,280		
Lucerne	53,725		
Baled Bagasse	12,415		
Wheat Bran	271,645		
Bone Meal	8,790		
Cod Liver Oil	6,060		
Oats	58,800		
Dried Milk	2,505		
Meat Meal	58,655		
Wheaten Flour	54,782		
		713,382	
Carried over ...		—	

	Kilos	Kilos In	Kilos Out
Brought forward ...		713,382	
FROM FLOUR STORE:—			
Poonac Flour	150,615		
Cotton Seed Flour	56,145		
Beans Flour	750		
Rice Flour	810		
		208,320	
FROM MAIZE DEPARTMENT:—			
Maize Flour	479,380		
Maize Rice	4,500		
		483,880	
FROM ANIMAL FEEDING STUFF DEPARTMENT:—			
Bulls Feed (remixed)	440		
Calf Feed (remixed)	900		
Special Horse Feed (remixed) ...	78		
		1,418	
To Animal Feeding Stuff Department			1,407,000 net
		1,407,000	1,407,000
ANIMAL FEEDING STUFF DEPARTMENT:—			
Stock on 1.7.58			
Poultry Feed	4,640		
Chick Feed	565		
Pig Feed	575		
Cow Feed	1,610		
Special Horse Feed	423		
Ureated Molasses	160		
Special Cow Feed	2,095		
Calf Feed	370		
Horse Feed	1,005		
Bulls Feed	360		
		11,803 (gross for net)	
ROSE HILL EXTENSION SHOP:—			
Stock on 1.7.58			
Poultry Feel	2,385		
Chick Feed	310		
Pig Feed	300		
Cow Feed	100		
		3,095 (gross for net)	
FROM MIXING DEPARTMENT:—			
Special Horse Feed	8,415		
Bulls Feed	10,710		
Horse Feed	17,340		
Poultry Feed	697,635		
Pig Feed	154,270		
Cow Feed	137,190		
Chick Feed	80,070		
Ureated Molasses	47,930		
Special Cow Feed	235,110		
Calf Feed	42,580		
Piglet Feed	1,020		
Cow Feed Cubes	3,060		
		1,435,330 (gross for net)	
Carried over ...		—	

	Kilos	Kilos In	Kilos Out
Brought forward ...		-	
To Sales:—			
Poultry Feed	697,545		
Piglet Feed	1,000		
Cow Feed Cubes	2,300		
Ureated Molasses	47,150		
Special Cow Feed	236,500		
Calf Feed	41,050		
Chick Feed	79,270		
Horse Feed	18,150		
Bulls Feed	10,440		
Special Horse Feed ...	8,250		
Cow Feed	134,540		
Pig Feed	153,450		
			1,429,605 (gross for net)
Sent to Mixing:—			
Bulls Feed (remixed)	440		
Calf Feed (remixed)	900		
Special Horse Feed (remixed) ...	78		
			1,418 (gross for net)
Stack Loss:—			
Piglet Feed	20		
			20 (gross for net)
		1,450,228	1,431,043
Balance of Stock on 30.6.59:—			
Poultry Feed	2,960		
Cow Feed Cubes	560		
Calf Feed	1,000		
Ureated Molasses	940		
Special Cow Feed	705		
Chick Feed	1,065		
Horse Feed	195		
Bulls Feed	230		
Special Horse Feed	510		
Cow Feed	3,660		
Pig Feed	1,495		
			13,320 (gross for net)
Balance of Stock at Rose Hill Extension Shop:—			
Poultry Feed	4,155		
Chick Feed	610		
Pig Feed	200		
Cow Feed (loose)	700		
Cow Feed (cubes)	200		
			5,865 (gross for net)
Total ...		1,450,228	1,450,228

RICHELIEU LIVESTOCK FEED FACTORY

Statement of Maize processed during the year ended 30th June 1959

	Kilos	Kilos In	Kilos Out
RECEIVING DEPARTMENT:—			
Stock on 1.7.58	242,460		
Purchases	367,320		
		609,780	
To Milling Department	565,750		
Sales	1,000		
Stack loss	11,100		
Balance on 30.6.59	31,930		
			609,780
		609,780	609,780
MILLING DEPARTMENT:—			
From Receiving Department ...	565,750		
		565,750	
TO GROUND MAIZE STORE:—			
Rice	10,950		
Flour	546,250		
Industrial Loss	8,550		
			565,750
		565,750	565,750

	Rice	Flour
GROUND MAIZE STORE:—		
Stock on 1.7.58 (Richelieu Factory)	200	—
(Rose Hill extension shop)	150	—
From Milling Department	10,950	546,250
	11,300	546,250
To Mixing Department (Animal Feeding Stuffs)	4,500	479,380
Sales	6,600	55,952
Stack Loss	—	2,083
Balance of Stock on 30.6.59 (Richelieu Ftry.)...	100	8,835
(Rose Hill Extension Shop)	100	—
	11,300	546,250

1057/2/61/—630

F. Conversion Table

1 Arpent	1.043 acres
1 Gaulette	10.6 feet
1 Metric ton	1,000 kilos
1 Long ton	1,016 kilos
1 Kilo	1,000 grams
1 Pound avoirdupois	454 grams
1 Hundredweight	50.803 kilos
1 Cord	92.82 cubic feet
1 Imperial gallon	4.54 litres
1 Rupee	1/6d. sterling